ORDER NO. KM41302655CE
F13

Service Manual

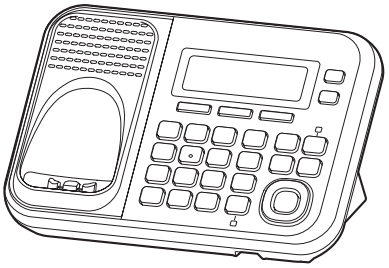
Telephone Equipment

DECT 6.0

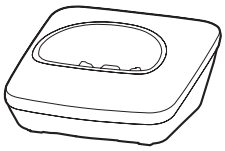
Bluetooth®

Model No. KX-TG7841S
KX-TG7842S
KX-TG7843S
KX-TG7844S
KX-TG7845S
KX-TG365SK
KX-TG7871S
KX-TG7872S
KX-TG7873S
KX-TG7874S
KX-TG7875S
KX-TG385SK
KX-TGA680S
KX-TGA20B

KX-TGA680
(Handset)



KX-TG7841/7871
(Base Unit)



(Charger Unit)

Link-to-Cell Cellular Convergence Solution

B: Black Version
S: Silver Version
(for U.S.A.)

Configuration for each model

Model No	Base Unit	Handset	Charger Unit	Expandable
KX-TG7841	1 (TG7841)	1 (TGA680)		Up to 6
KX-TG7842	1 (TG7841)	2 (TGA680)	1	Up to 6
KX-TG7843	1 (TG7841)	3 (TGA680)	2	Up to 6
KX-TG7844	1 (TG7841)	4 (TGA680)	3	Up to 6
KX-TG7845	1 (TG7841)	5 (TGA680)	4	Up to 6
KX-TG365	1 (TG7841)	5 (TGA680)	4	Up to 6
KX-TG7871	1 (TG7871)	1 (TGA680)		Up to 6
KX-TG7872	1 (TG7871)	2 (TGA680)	1	Up to 6
KX-TG7873	1 (TG7871)	3 (TGA680)	2	Up to 6
KX-TG7874	1 (TG7871)	4 (TGA680)	3	Up to 6
KX-TG7875	1 (TG7871)	5 (TGA680)	4	Up to 6
KX-TG385	1 (TG7871)	5 (TGA680)	4	Up to 6
KX-TGA680*		1 (TGA680)	1	

*KX-TGA680 is also an optional accessory, which contains a handset and a charger.

Panasonic®

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product, the printed circuit boards will be marked PbF. Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.
When this mark does appear, please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

- When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.
- The illustrations in this Service Manual may vary slightly from the actual product.

TABLE OF CONTENTS

PAGE

1 Safety Precautions ---- 5
1.1. For Service Technicians ---- 5
2 Warning ---- 5
2.1. Battery Caution ---- 5
2.2. About Lead Free Solder (PbF: Pb free) ---- 5
2.2.1. Suggested PbF Solder ---- 6
2.3. Discarding of P. C. Board ---- 6
3 Specifications ---- 7
4 Technical Descriptions ---- 8
4.1. Circuit Configuration of TG78xx Series Phones ---- 8
4.2. US-DECT Description ---- 9
4.2.1. TDD Frame Format ---- 9
4.2.2. TDMA system ---- 9
4.2.3. Signal Flowchart in the Radio Parts ---- 10
4.3. Block Diagram (Base Unit_Main) ---- 11
4.4. Tel Interface Circuit ---- 12
4.5. Block Diagram (Base Unit_RF Part) ---- 13
4.6. Circuit Operation (Base Unit) ---- 14
4.6.1. BBIC (Base Band IC: IC501) ---- 14
4.6.2. Flash Memory (IC502) ---- 14
4.6.3. Flash Memory (IC601) ---- 14
4.6.4. EEPROM (IC611) ---- 14
4.6.5. Bluetooth Unit (IC721) ---- 14
4.6.6. Power Supply Circuit/Reset Circuit ---- 15
4.6.7. Telephone Line Interface ---- 17
4.6.8. Parallel Connection Detect Circuit/Auto Disconnect Circuit ---- 18
4.6.9. Calling Line Identification (Caller ID)/Call Waiting Caller ID ---- 19
4.7. Block Diagram (Handset) ---- 21
4.8. Block Diagram (Handset_RF Part) ---- 22
4.9. Circuit Operation (Handset) ---- 23
4.9.1. Outline ---- 23
4.9.2. Power Supply Circuit/Reset Circuit ---- 23
4.9.3. Charge Circuit ---- 24
4.9.4. Battery Low/Power Down Detector ---- 24
4.9.5. Speakerphone ---- 24
4.10. Behavior of Electric Power Failure ---- 25
4.11. Circuit Operation (Charger Unit) ---- 25
4.12. Signal Route ---- 26
5 Location of Controls and Components ---- 28
6 Installation Instructions ---- 28
7 Operating Instructions ---- 28
8 Test Mode ---- 29
8.1. Engineering Mode ---- 29
8.1.1. Base Unit ---- 29
8.1.2. Handset ---- 31
9 Service Mode ---- 33
9.1. How to Clear User Setting (Handset Only) ---- 33
10 Troubleshooting Guide ---- 34
10.1. Troubleshooting Flowchart ---- 34
10.1.1. Check Power ---- 35
10.1.2. Check Record ---- 36
10.1.3. Check Playback ---- 39
10.1.4. Check Battery Charge ---- 39
10.1.5. Check Link ---- 40
10.1.6. Check the RF part ---- 42

PAGE

10.1.7. Registering a Handset to the Base Unit ---- 46
10.1.8. Deregistering a Handset ---- 46
10.1.9. Check Handset Transmission ---- 47
10.1.10. Check Handset Reception ---- 47
10.1.11. Check Caller ID ---- 47
10.1.12. Check BT Communication ---- 48
11 Disassembly and Assembly Instructions ---- 50
11.1. Disassembly Instructions ---- 50
11.1.1. Base Unit ---- 50
11.1.2. Handset ---- 52
11.1.3. Charger Unit ---- 53
11.2. How to Replace the Base unit LCD ---- 54
11.3. How to Replace the Handset LCD ---- 56
12 Measurements and Adjustments ---- 57
12.1. Equipment Required ---- 57
12.2. The Setting Method of JIG ---- 57
12.2.1. Connections (Base Unit) ---- 57
12.2.2. Connections (Handset) ---- 58
12.2.3. How to install Batch file into P.C. ---- 59
12.2.4. Commands ---- 60
12.3. Adjustment Standard (Base Unit) ---- 61
12.3.1. Bottom View ---- 61
12.4. Adjustment Standard (Handset) ---- 62
12.4.1. Component View ---- 62
12.5. Things to Do after Replacing IC or X'tal ---- 63
12.5.1. How to download the data ---- 63
12.6. Frequency Table ---- 66
12.7. Bluetooth Frequency Table ---- 67
13 Miscellaneous ---- 68
13.1. How to Replace the LLP (Leadless Leadframe Package) IC ---- 68
13.1.1. Preparation ---- 68
13.1.2. Caution ---- 68
13.1.3. How to Remove the IC ---- 68
13.1.4. How to Install the IC ---- 69
13.2. How to Replace the Flat Package IC ---- 70
13.2.1. Preparation ---- 70
13.2.2. How to Remove the IC ---- 70
13.2.3. How to Install the IC ---- 71
13.2.4. How to Remove a Solder Bridge ---- 71
13.3. Terminal Guide of the ICs, Transistors and Diodes ---- 72
13.3.1. Base Unit ---- 72
13.3.2. Handset ---- 72
14 Schematic Diagram ---- 73
14.1. For Schematic Diagram ---- 73
14.1.1. Base Unit (Schematic Diagram (Base Unit_Main)) ---- 73
14.1.2. Handset (Schematic Diagram (Handset_Main)) ---- 73
14.2. Schematic Diagram (Base Unit_Main) ---- 74
14.3. Schematic Diagram (Base Unit_RF) ---- 76
14.4. Schematic Diagram (Base Unit_Operation) ---- 77
14.5. Schematic Diagram (Base Unit_USB Charge) ---- 78
14.6. Schematic Diagram (Base Unit_LED) ---- 78
14.7. Schematic Diagram (Handset_Main) ---- 80
15 Printed Circuit Board ---- 83
15.1. Circuit Board (Base Unit_Main) ---- 83

15.1.1. Component View ---- 83
15.1.2. Bottom View ---- 84
15.2. Circuit Board (Base Unit_Operation) ---- 85
15.3. Circuit Board (Base Unit_USB Charge) ---- 86
15.4. Circuit Board (Base Unit_LED) ---- 86
15.5. Circuit Board (Handset_Main) ---- 87
15.5.1. Component View ---- 87
15.5.2. Bottom View ---- 88
16 Exploded View and Replacement Parts List ---- 89
16.1. Cabinet and Electrical Parts (Base Unit) ---- 89
16.2. Cabinet and Electrical Parts (Handset) ---- 90
16.3. Cabinet and Electrical Parts (Charger Unit) ---- 91
16.4. Accessories and Packing Materials ---- 92
16.4.1. KX-TG7841S ---- 92
16.4.2. KX-TG7842S ---- 93
16.4.3. KX-TG7843S ---- 94
16.4.4. KX-TG7844S ---- 95
16.4.5. KX-TG7845S ---- 96
16.4.6. KX-TG365SK ---- 97
16.4.7. KX-TG7871S ---- 98
16.4.8. KX-TG7872S ---- 99
16.4.9. KX-TG7873S ---- 100
16.4.10. KX-TG7874S ---- 101
16.4.11. KX-TG7875S ---- 102
16.4.12. KX-TG385SK ---- 103
16.4.13. KX-TGA680S ---- 104
16.5. Replacement Parts List ---- 105
16.5.1. Base Unit ---- 105
16.5.2. Handset ---- 107
16.5.3. Charger Unit ---- 109
16.5.4. Accessories and Packing Materials ---- 109
16.5.5. Screws ---- 110
16.5.6. Fixtures and Tools ---- 110

1 Safety Precautions

1.1. For Service Technicians

- **Repair service shall be provided in accordance with repair technology information such as service manual so as to prevent fires, injury or electric shock, which can be caused by improper repair work**.
  1. When repair services are provided, neither the products nor their parts or members shall be remodeled.
  2. If a lead wire assembly is supplied as a repair part, the lead wire assembly shall be replaced.
  3. FASTON terminals shall be plugged straight in and unplugged straight out.

- **ICs and LSIs are vulnerable to static electricity.**
  When repairing, the following precautions will help prevent recurring malfunctions.
  1. Cover plastic parts boxes with aluminum foil.
  2. Ground the soldering irons.
  3. Use a conductive mat on worktable.
  4. Do not grasp IC or LSI pins with bare fingers.

2 Warning

2.1. Battery Caution

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Attention:

A nickel metal hydride battery that is recyclable powers the product you have purchased.
Please call 1-800-8-BATTERY (1-800-822-8837) for information on how to recycle this battery.

2.2. About Lead Free Solder (PbF: Pb free)

Note:

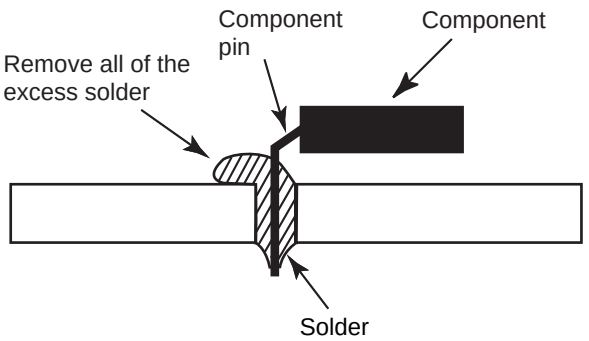
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder.

Caution

- PbF solder has a melting point that is 50 °F ~ 70 °F (30 °C ~ 40 °C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700 °F ± 20 °F (370 °C ± 10 °C).
- Exercise care while using higher temperature soldering irons.:
  Do not heat the PCB for too long time in order to prevent solder splash or damage to the PCB.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100 °F (600 °C).
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).

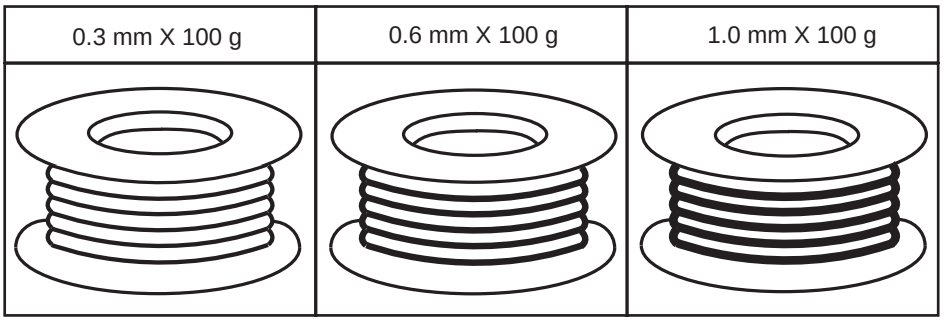


(Slice View)

2.2.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu), or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3 mm, 0.6 mm and 1.0 mm.



2.3. Discarding of P. C. Board

When discarding P. C. Board, delete all personal information such as telephone directory and caller list or scrap P. C. Board.

3 Specifications

■ **Standard:**
DECT 6.0 (Digital Enhanced Cordless Telecommunications 6.0)
Bluetooth wireless technology 2.1

■ **Number of channels:**
60 Duplex Channels (DECT 6.0)
79 Duplex channels(Bluetooth)

■ **Frequency range:**
1.92 GHz to 1.93 GHz (DECT 6.0)
2.402 GHz to 2.48 GHz (Bluetooth)

■ **Duplex procedure:**
TDMA (Time Division Multiple Access)

■ **Channel spacing:**
1.728MHz (DECT 6.0)
1.0MHz(Bluetooth)

■ **Bit rate:**
1.152Mbit/s (DECT 6.0)
1.0 Mbit/s (Bluetooth)

■ **Modulation:**
GFSK (Gaussian Frequency Shift Keying)

■ **RF transmission power:**
115 mW (max/DECT6.0)

■ **Voice coding:**
ADPCM 32 kbit/s (DECT 6.0)
CVSD/PCM 64kbit/s (Bluetooth)
PCM 64kbit/s(BT_IC)

■ **USB Charger: (*2)**
Output voltage: DC 5 V
Output current: 500 mA

	Base Unit	Handset	Charger
Power source	AC Adaptor (PNLV226Z, 120 V AC, 60 Hz) (*1) (PNLV234Z, 120 V AC, 60 Hz) (*2)	Rechargeable Ni-MH battery AAA (R03) size (1.2 V 400 mAh)	AC Adaptor (PNLV233-AZ, 120 V AC, 60 Hz)
Receiving Method	Super Heterodyne	Super Heterodyne	——
Oscillation Method	PLL synthesizer	PLL synthesizer	——
Detecting Method	Quadrature Discriminator	Quadrature Discriminator	——
Tolerance of OSC Frequency	10.368 MHz ±100 Hz	13.824 MHz ±100 Hz	——
Modulation Method	Frequency Modulation	Frequency Modulation	——
ID Code	40 bit	40 bit	——
Ringer Equivalence No. (REN)	0.1B	——	——
Dialing Mode	Tone (DTMF)/Pulse	Tone (DTMF)/Pulse	——
Redial	Up to 48 digits	Up to 48 digits	——
Speed Dialer	Up to 24 digits (Phonebook)	Up to 24 digits (Phonebook)	——
Power Consumption	Standby: Approx. 1.2 W Maximum: Approx. 4.5 W (*1) Maximum: Approx. 8.5 W (*2)	8 days at Standby, 10 hours at Talk	Standby: Approx 0.1 W Maximum: Approx 1.8 W
Operating Conditions	0 ˚C - 40 ˚C (32 ˚F – 104 ˚F) 20 % – 80 % relative air humidity (dry)	0 ˚C - 40 ˚C (32 ˚F – 104 ˚F) 20 % – 80 % relative air humidity (dry)	0 ˚C - 40 ˚C (32 ˚F – 104 ˚F) 20 % – 80 % relative air humidity (dry)
Dimensions (W x D x H)	Approx. 178 mm × 115 mm × 101 mm	Approx. 48 mm × 31 mm × 168 mm	Approx. 72 mm × 73 mm × 39 mm
Mass (Weight)	Approx. 350 g	Approx. 130 g	Approx. 100 g

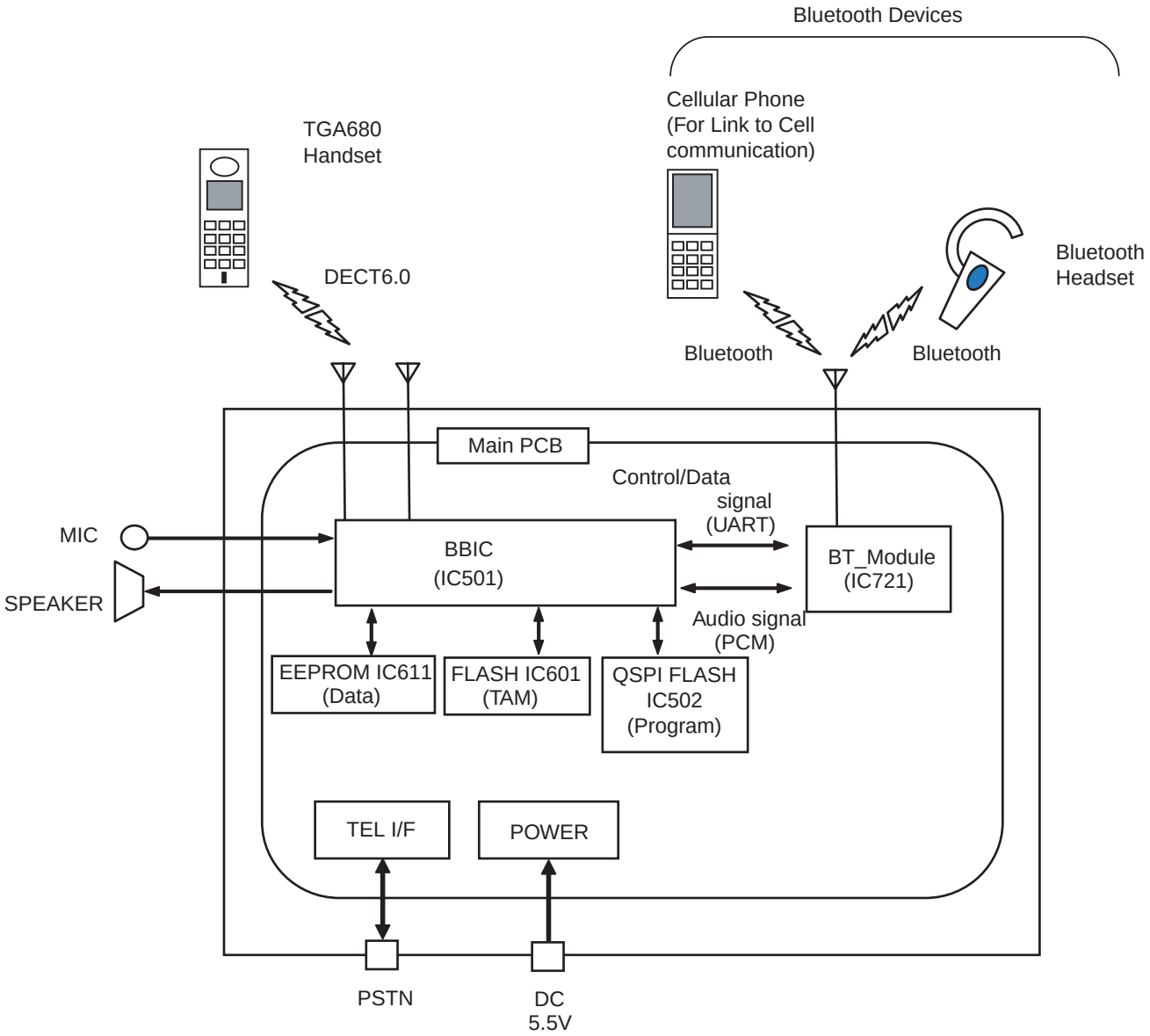
Note:
(*1) KX-TG7841/KX-TG7842/KX-TG7843/KX-TG7844/KX-TG7845/KX-TG365SK
(*2) KX-TG7871/KX-TG7872/KX-TG7873/KX-TG7874/KX-TG7875/KX-TG385SK
Design and specifications are subject to change without notice.

Note for Service:
- **Operation range:** Up to 300 m outdoors, Up to 50 m indoors, depending on the condition.
- **Analog telephone connection:** Telephone Line
- **Optional headset:** KX-TCA60, KX-TCA93, KX-TCA400, KX-TCA430
- **Optional Range extender:** KX-TGA405
- **Optional Key detector:** KX-TGA20

4 Technical Descriptions

4.1. Circuit Configuration of TG78xx Series Phones

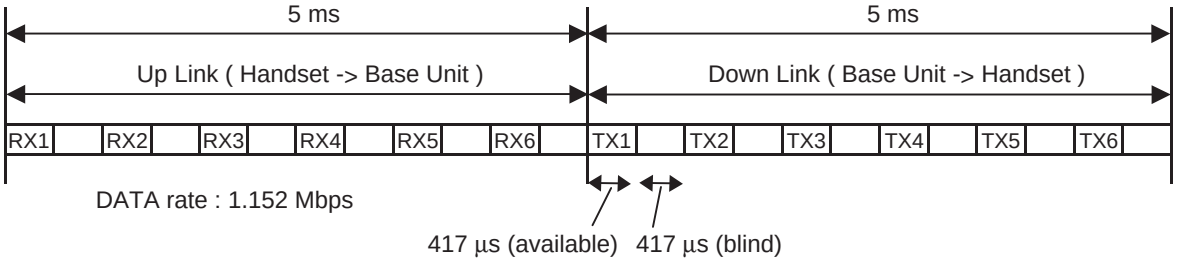
TG78xx consists of DECT cordless telephone and Bluetooth Module.
Both voices of transmission and reception are transferred by PCM.
BBIC on DECT side controls the cordless telephone system, which makes control data communication with BT_IC on BT Module in serial data.



4.2. US-DECT Description

The frequency range of 1.92 GHz-1.93 GHz is used. Transmitting and receiving carrier between base unit and handset is same frequency. Refer to **Frequency Table** (P.66).

4.2.1. TDD Frame Format

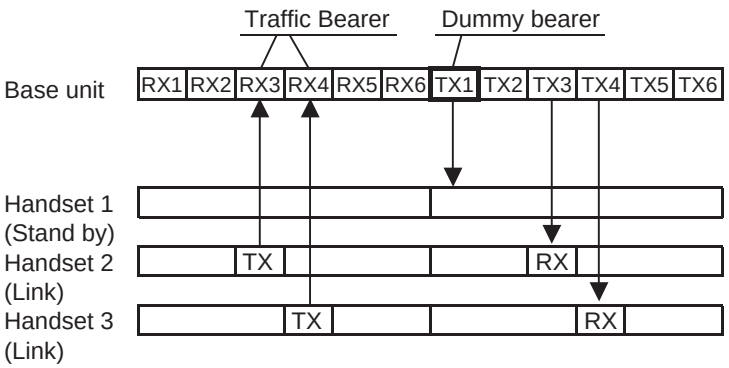


4.2.2. TDMA system

This system is the cycles of 10 ms, and has 6 duplex paths, but maximum duplex communication path is 5 because of dummy bearer use.

In 1 slot 417 µs, the 10 ms of voice data is transmitted.

- **2 - Handsets Link**



Traffic Bearer

A link is established between base unit and handset.

The state where duplex communication is performed.

Handset doesn't make up duplex in no free RF channels because of interference. (*1)

Dummy Bearer

Base unit sends Dummy-data to the all stand-by state handsets.

Handsets receive that data for synchronization and monitoring request from the base unit.

Base unit doesn't send Dummy bearer in no free RF channels because of interference. (*1)

Note:

(*1) It is a feature under FCC 15 regulation and for interference avoidance.

In the case of checking RF parts, it is better in least interference condition.

4.2.3. Signal Flowchart in the Radio Parts

Reception

Base unit:

A voice signal from TEL line is encoded to digital data and converted into a 1.9GHz modulated radio signal by BBIC(IC501). The RF signal, after which is amplified in BBIC, is fed to selected antenna.

Handset:

As for a handset RF, RF signal is received in one antenna.
BBIC down-converts to 864 kHz IF signal from RX signal and demodulates it to digital data "RXDATA".
BBIC (IC1) converts RXDATA into a voice signal and outputs it to speaker.

Transmission

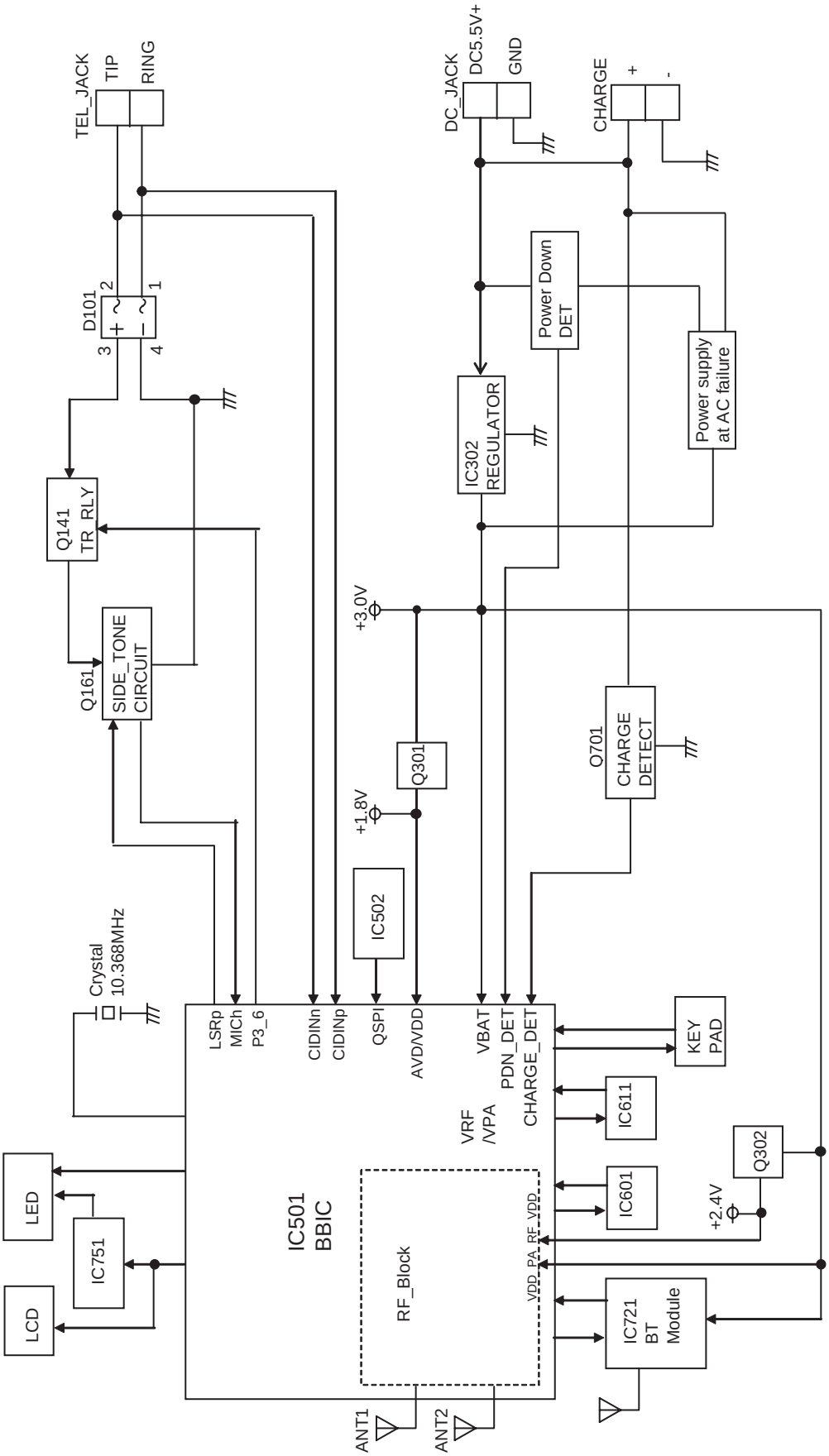
Handset:

A voice signal from microphone is encoded to digital data and converted into a 1.9GHz modulated radio signal by BBIC(IC1). The RF signal, after which is amplified in BBIC, is fed to an antenna.

Base unit:

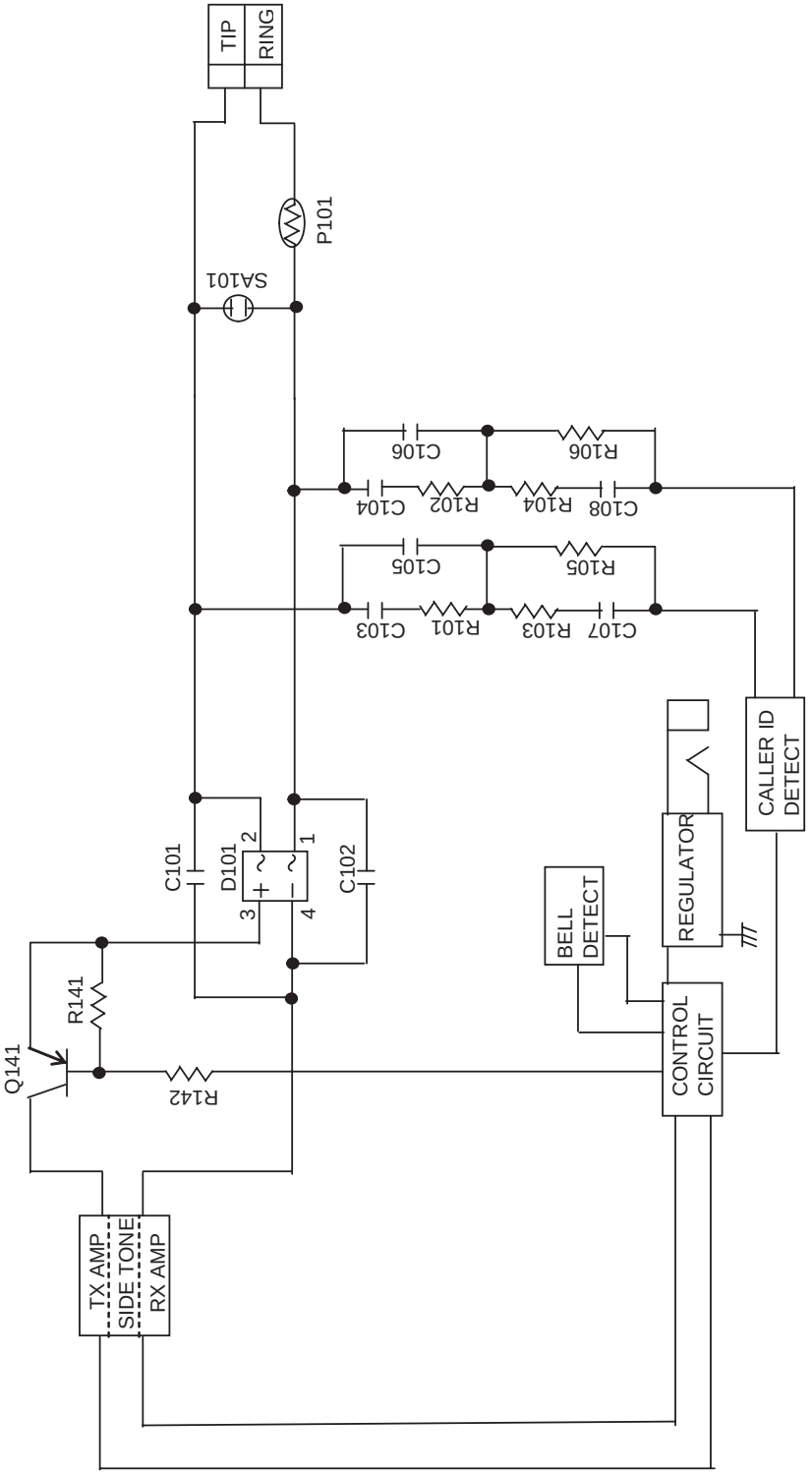
As for a base unit RF, RF signal is received in two antennas.
BBIC (IC501) compares RF signal levels and selects the antenna to be used. Then BBIC down-converts to 864 kHz IF signal from RX signal in the selected antenna, and demodulates it to digital data "RXDATA".
BBIC (IC501) converts RXDATA into a voice signal and outputs it to TEL line.

4.3. Block Diagram (Base Unit_Main)

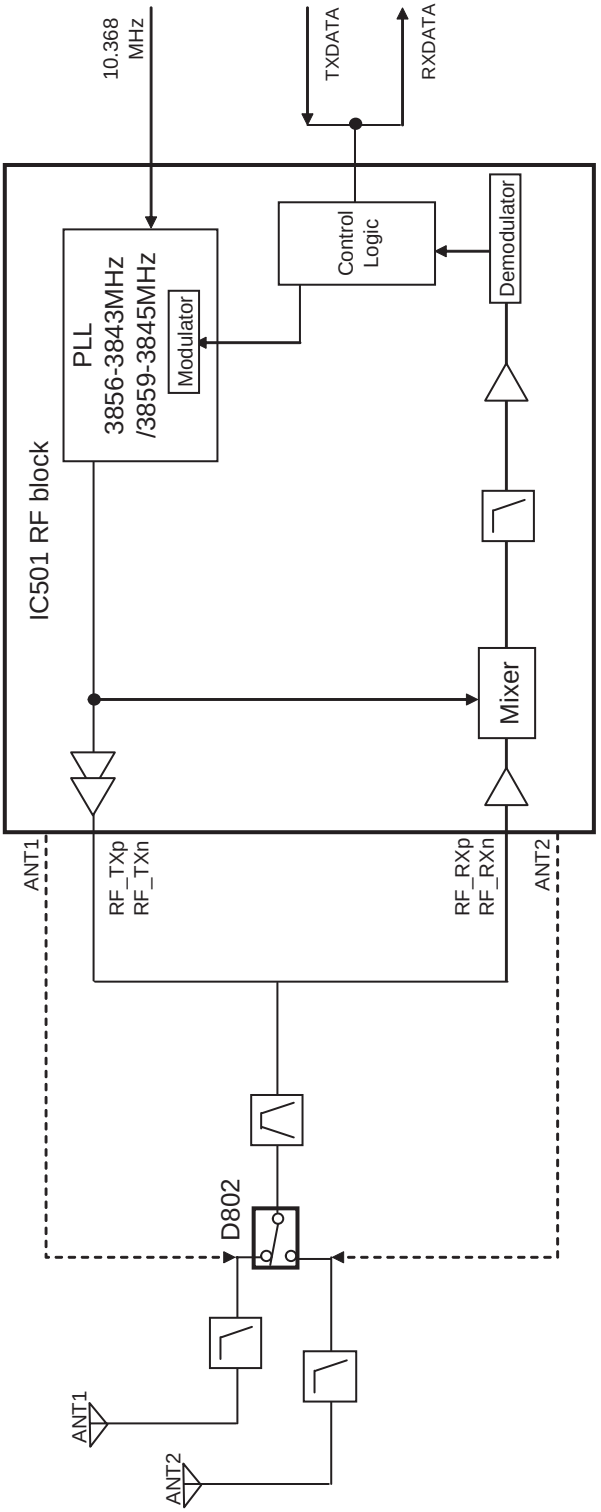


KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385 BLOCK DIAGRAM (Base Unit_Main)

4.4. Tel Interface Circuit



4.5. Block Diagram (Base Unit_RF Part)



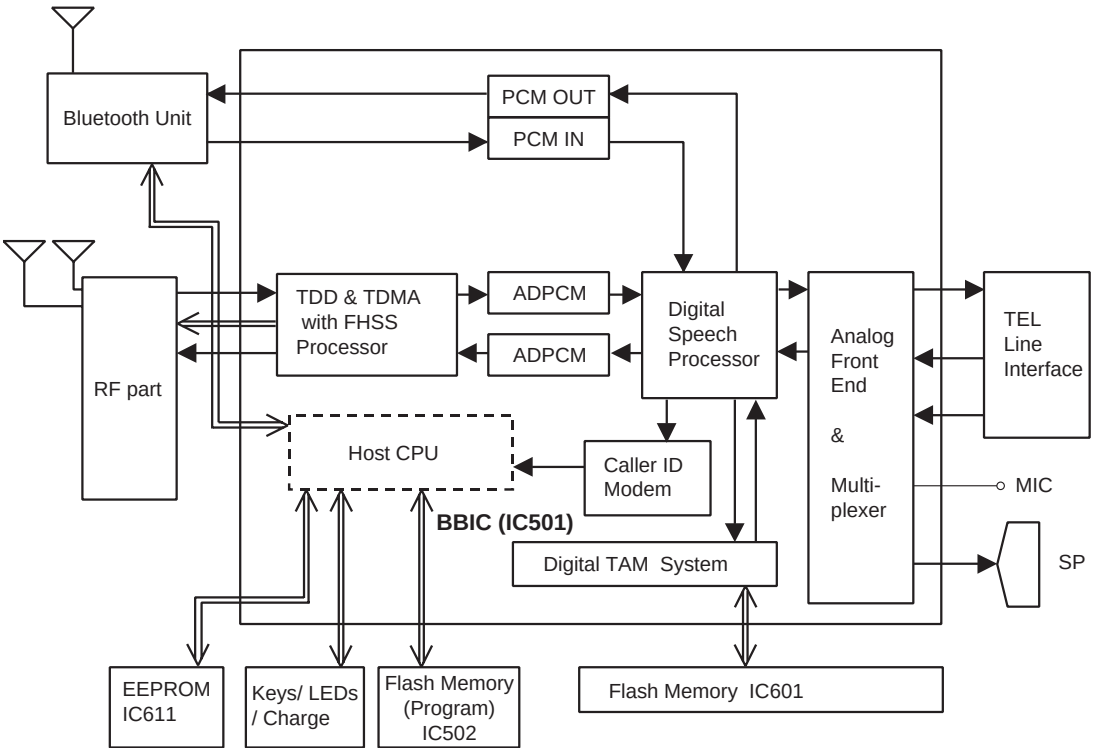
KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385 BLOCK DIAGRAM (Base Unit_RF Part)

4.6. Circuit Operation (Base Unit)

General Description:

(BBIC, Flash Memory, EERROM) is a digital speech/signal processing system that implements all the functions of speech compression, record and playback, and memory management required in a digital telephone answering machine.

The BBIC system is fully controlled by a host processor. The host processor provides activation and control of all that functions as follows.



4.6.1. BBIC (Base Band IC: IC501)

- **Voice Message Recording/Play back**
  The BBIC system uses a proprietary speech compression technique to record and store voice message in Flash Memory. An error correction algorithm is used to enable playback of these messages from the Flash Memory.
- **DTMF Generator**
  When the DTMF data from the handset is received, the DTMF signal is output.
- **Synthesized Voice (Pre-recorded message)**
  The BBIC implements synthesized Voice, utilizing the built in speech detector and a Flash Memory, which stored the vocabulary.
- **Caller ID demodulation**
  The BBIC implements monitor and demodulate the FSK/DTMF signals that provide CID information from the Central Office.
- **Digital Switching**
  The voice signal from telephone line is transmitted to the handset or the voice signal from the handset is transmitted to the Telephone line, etc. They are determined by the signal path route operation of voice signal.
- **Block Interface Circuit**
  RF part, LED, Key scan, Speaker, Telephone line.

4.6.2. Flash Memory (IC502)

Main program data is stored.

4.6.3. Flash Memory (IC601)

Following information data is stored.

- **Voice signal**
  ex: Pre-recorded Greeting message, Incoming message

4.6.4. EEPROM (IC611)

Following information data is stored.

- **Settings**
  ex: message numbers, ID code, Flash Time, Tone/Pulse

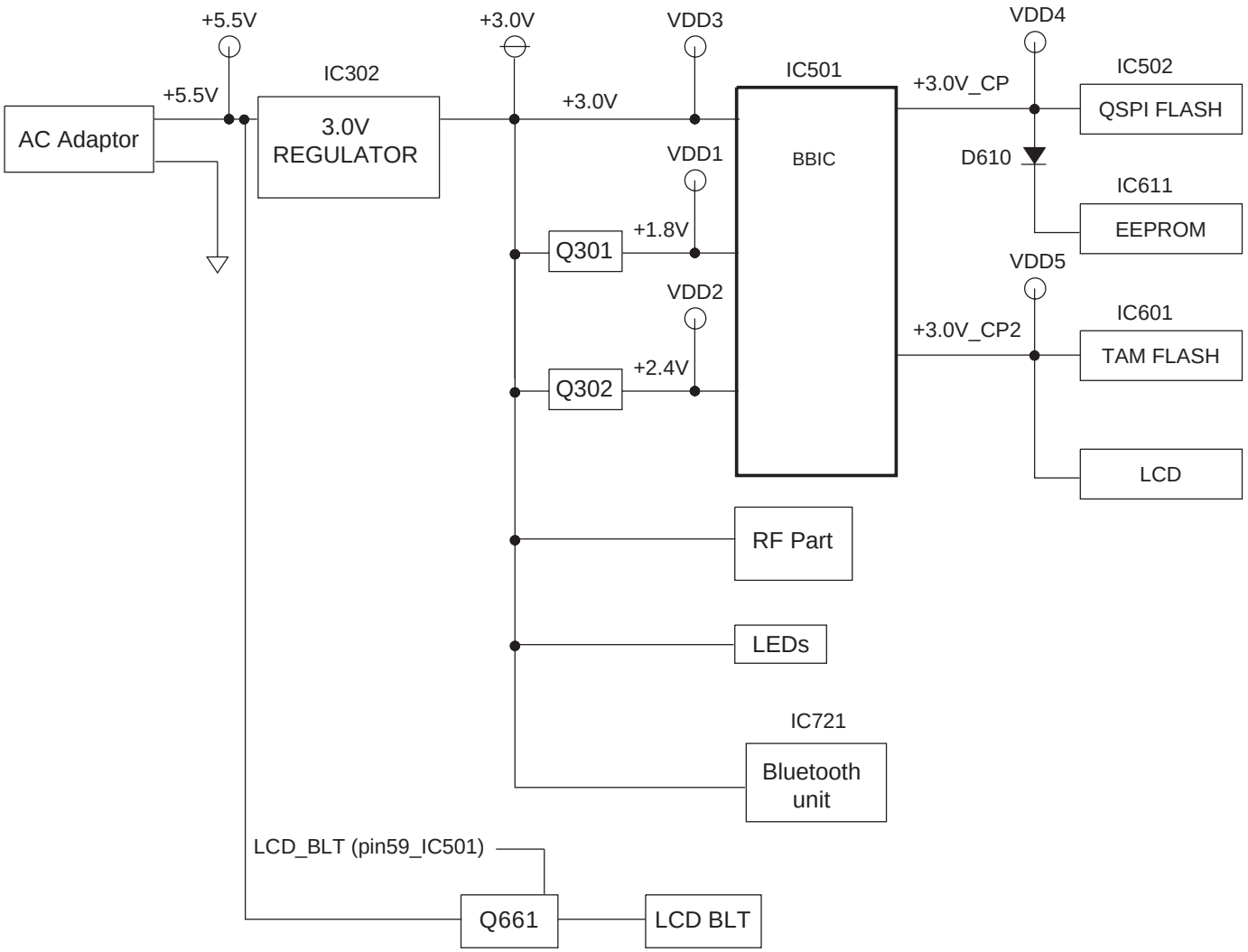
4.6.5. Bluetooth Unit (IC721)

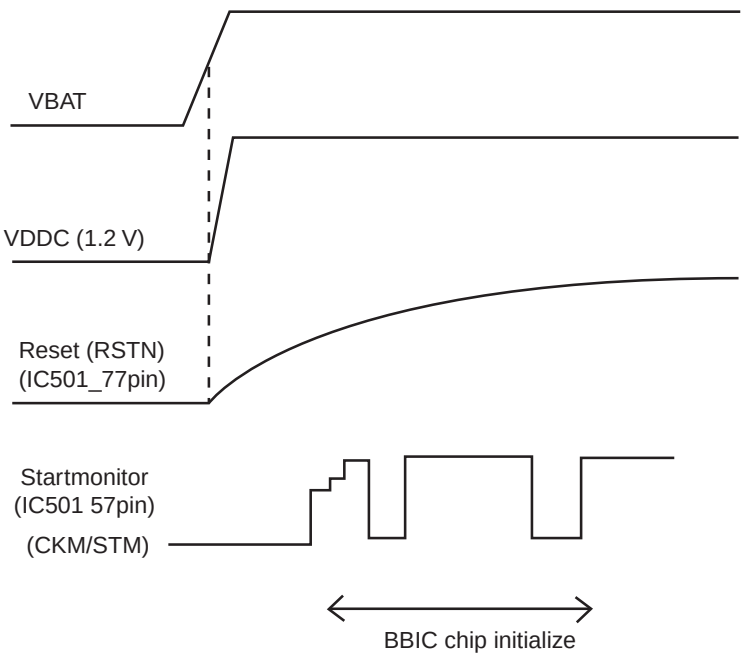
Use for Bluetooth communication.

4.6.6. Power Supply Circuit/Reset Circuit

The power supply voltage from AC adaptor is converted to VBAT (3.0V) in IC302. And +3.0V for peripherals and analog part is insulated from VBAT by Doubler of BBIC.

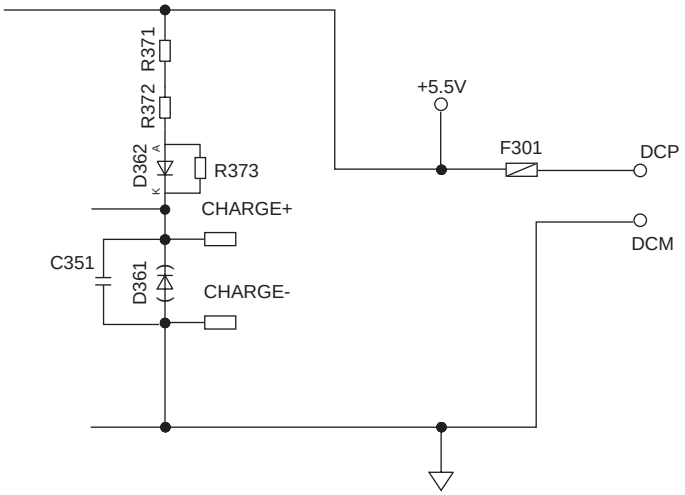
Circuit Operation:





4.6.6.1. Charge Circuit

The voltage from the AC adaptor is supplied to the charge circuits.



4.6.7. Telephone Line Interface

Telephone Line Interface Circuit:

Function

- Bell signal detection
- ON/OFF hook and pulse dial circuit
- Side tone circuit

Bell (RINGING) signal detection and OFF HOOK circuit:

In the idle mode, Q141 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the Tip (T) and Ring (R) leads (When the telephone rings), the AC ring voltage is transferred as follows:

L1T → C105 → R105 → R110 → R11 1→ R112 → BBIC pin18(RINGING)

When the CPU (BBIC) detects a ring signal, Q141 turns on, thus providing an off-hook condition (active DC current flow through the circuit). Following signal flow is the DC current flow.

T → D101 → Q141 → Q161 → R163 → D101 → P101 → R

ON HOOK Circuit:

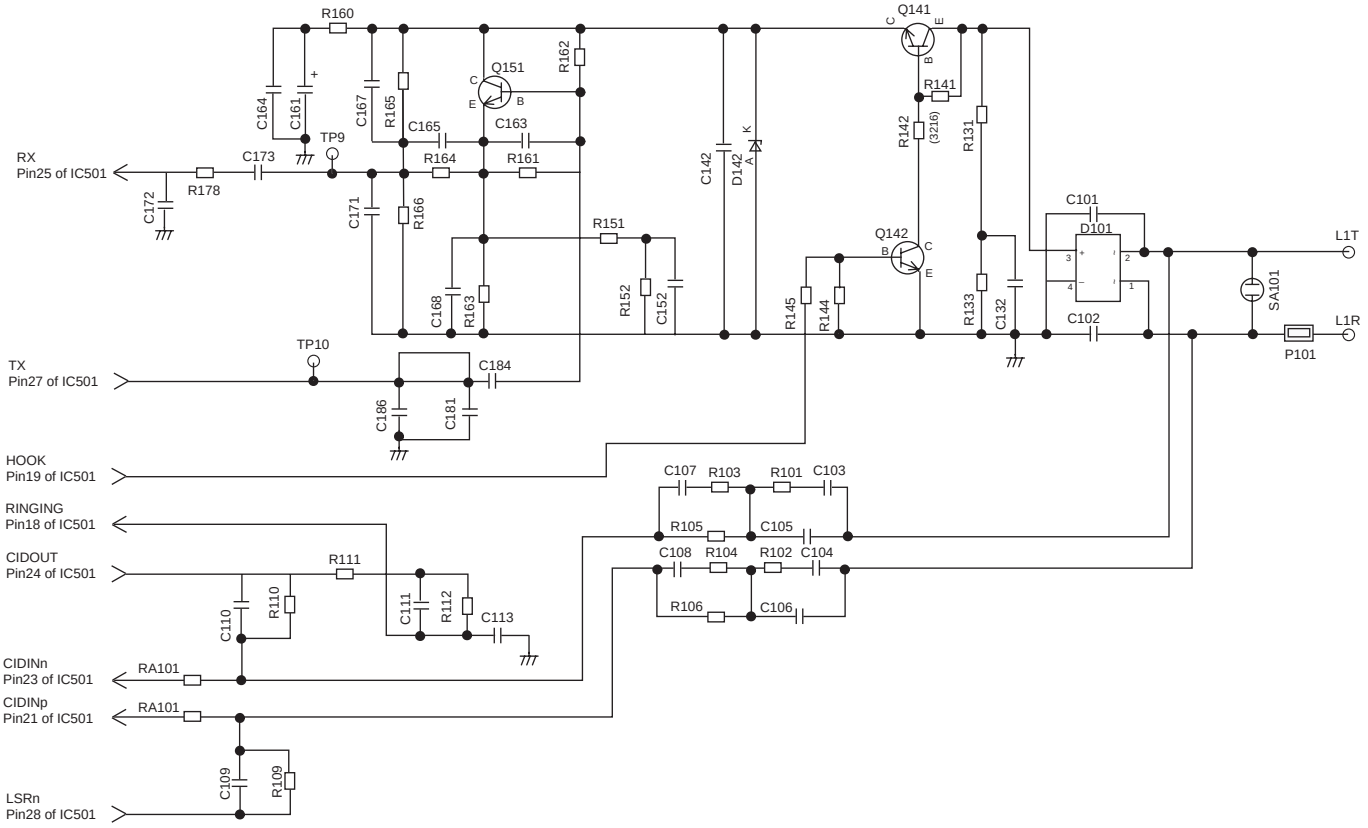
Q141 is open, Q141 is connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

Pulse Dial Circuit:

Pin 19 of BBIC turns Q141 ON/OFF to make the pulse dialing.

Side Tone Circuit:

Basically this circuit prevents the TX signal from feeding back to RX signal. As for this unit, TX signal feed back from Q161 is canceled by the canceller circuit of BBIC.



4.6.8. Parallel Connection Detect Circuit/Auto Disconnect Circuit

Function:

In order to disable call waiting and stutter tone functions when using telephones connected in parallel, it is necessary to have a circuit that judges whether a telephone connected in parallel is in use or not. This circuit determines whether the telephone connected in parallel is on hook or off hook by detecting changes in the T/R voltage.

Circuit Operation:

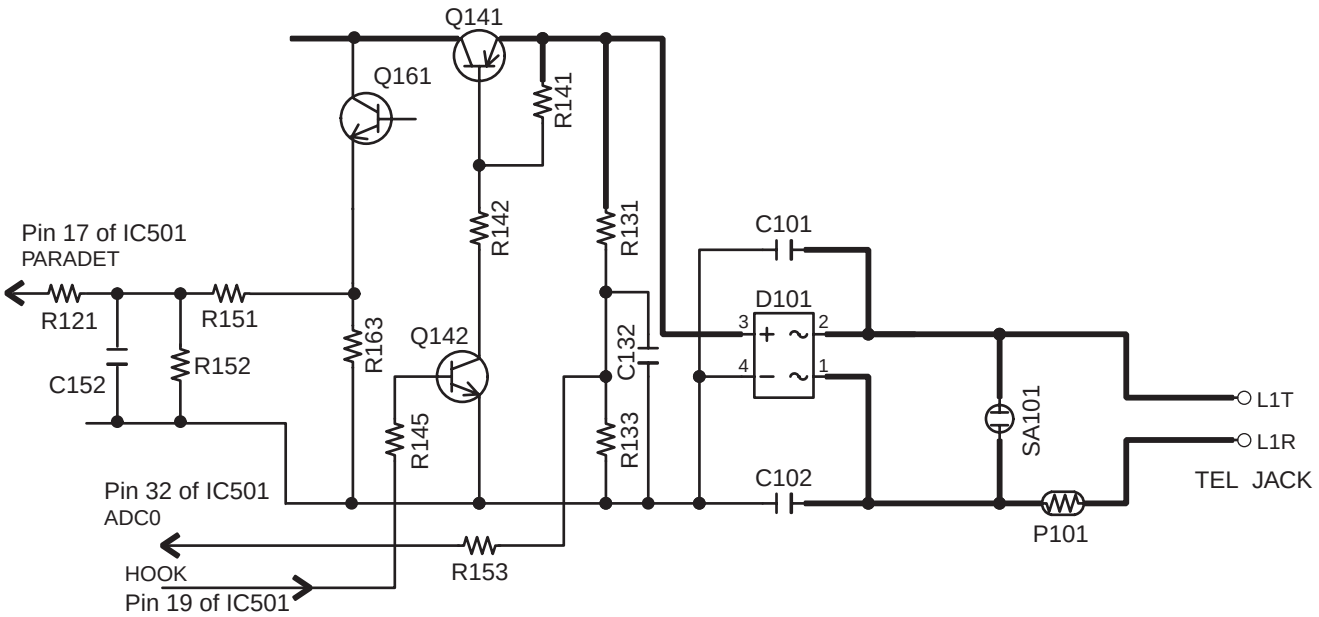
Parallel connection detection when on hook:

When on hook, the voltage is monitored at pin 32 of IC501. There is no parallel connection if the voltage is 0.54 V or higher, while a parallel connection is deemed to exist if the voltage is lower.

Parallel connection detection when off hook:

When off hook, the voltage is monitored at pin 17 of IC501; the presence/absence of a parallel connection is determined by detecting the voltage changes.

If the Auto disconnect function is ON and statuses are Hold, receiving ICM, OGM transmitting, BBIC disconnects the line after detecting parallel connection is off hook.



4.6.9. Calling Line Identification (Caller ID)/Call Waiting Caller ID

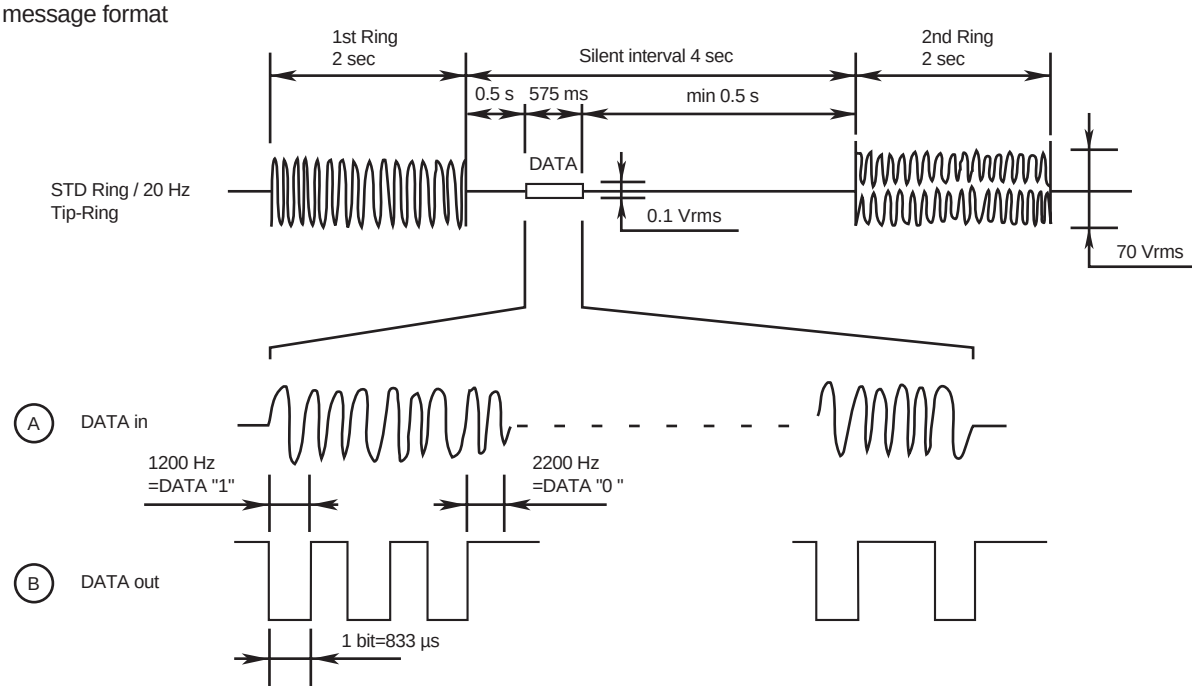
Function:

Caller ID

The caller ID is a chargeable ID which the user of a telephone circuit obtains by entering a contract with the telephone company to utilize a caller ID service. For this reason, the operation of this circuit assumes that a caller ID service contract has been entered for the circuit being used. The data for the caller ID from the telephone exchange is sent during the interval between the first and second rings of the bell signal. The data from the telephone exchange is a modem signal which is modulated in an FSK (Frequency Shift Keying) * format. Data "1" is a 1200 Hz sine wave, and data "0" is a 2200 Hz sine wave. There are two types of the message format which can be received: i.e. the single message format and plural message format. The plural message format allows to transmit the name and data code information in addition to the time and telephone number data.

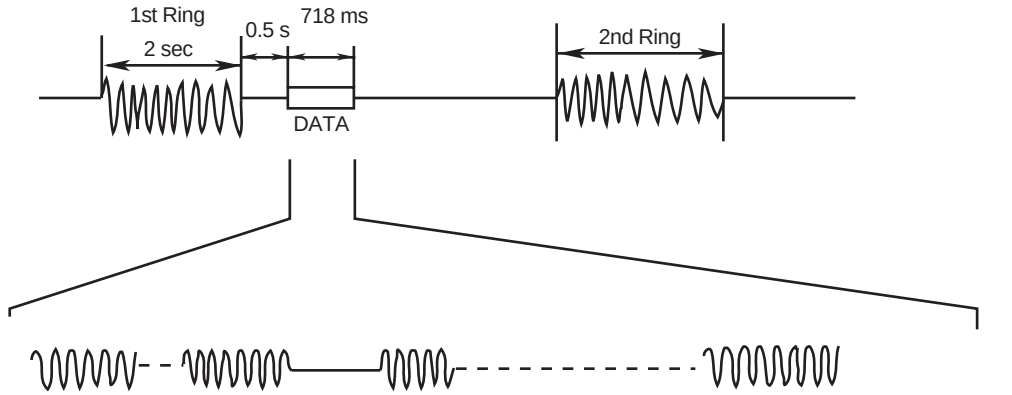
*: Also the telephone exchange service provides other formats.

- Single message format



month	day	hour	minute	number
04	15	16	35	2013487000

- Plural message format



DATA CODE	NAME
201	John Smith

month	day	hour	minute	number
04	16	16	35	2013487000

Call Waiting Caller ID

Calling Identity Delivery on Call Waiting (CIDCW) is a CLASS service that allows a customer, while off-hook on an existing call, to receive information about a calling party on a waited call. The transmission of the calling information takes place almost immediately after the customer is alerted to the new call so he/she can use this information to decide whether to take the new call.

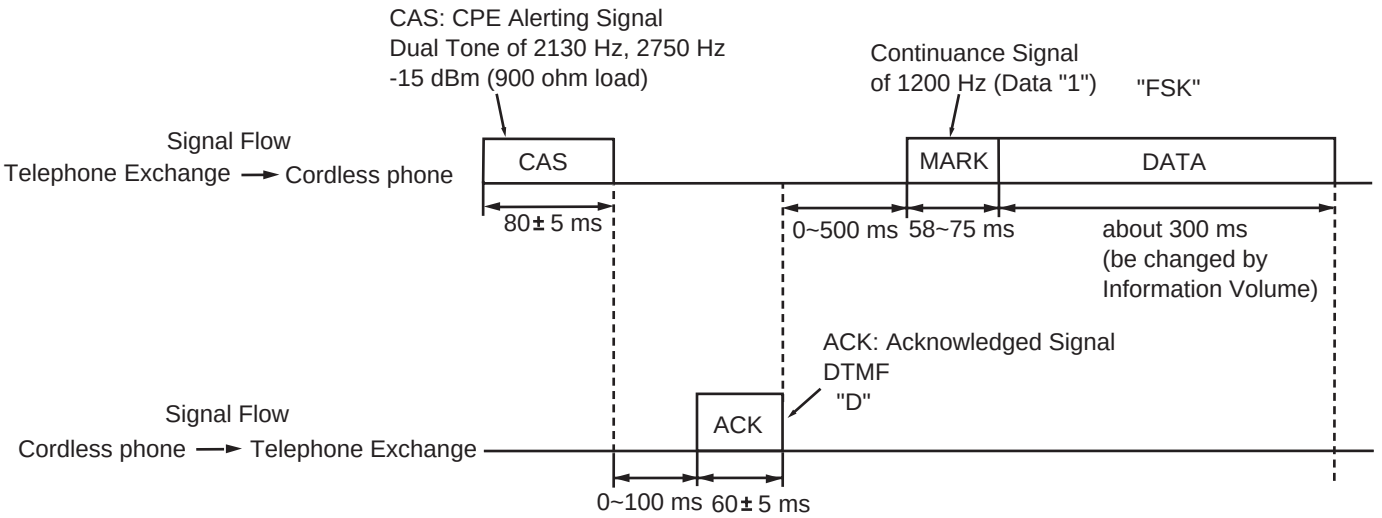
Function:

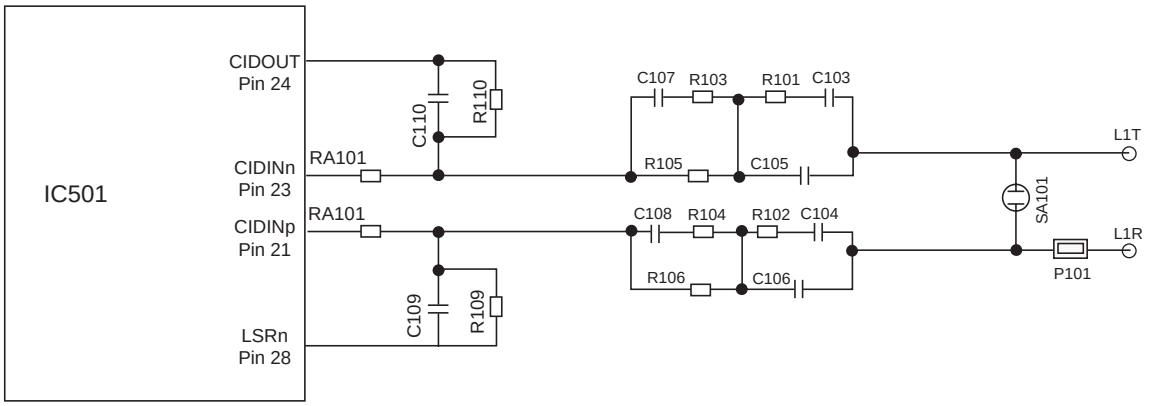
The telephone exchange transmits or receives CAS and ACK signals through each voice RX/TX route. Then FSK data and MARK data pass the following route.

Telephone Line → P101 → C105, C106 → R105, R106 → RA101 → IC501(23, 21).

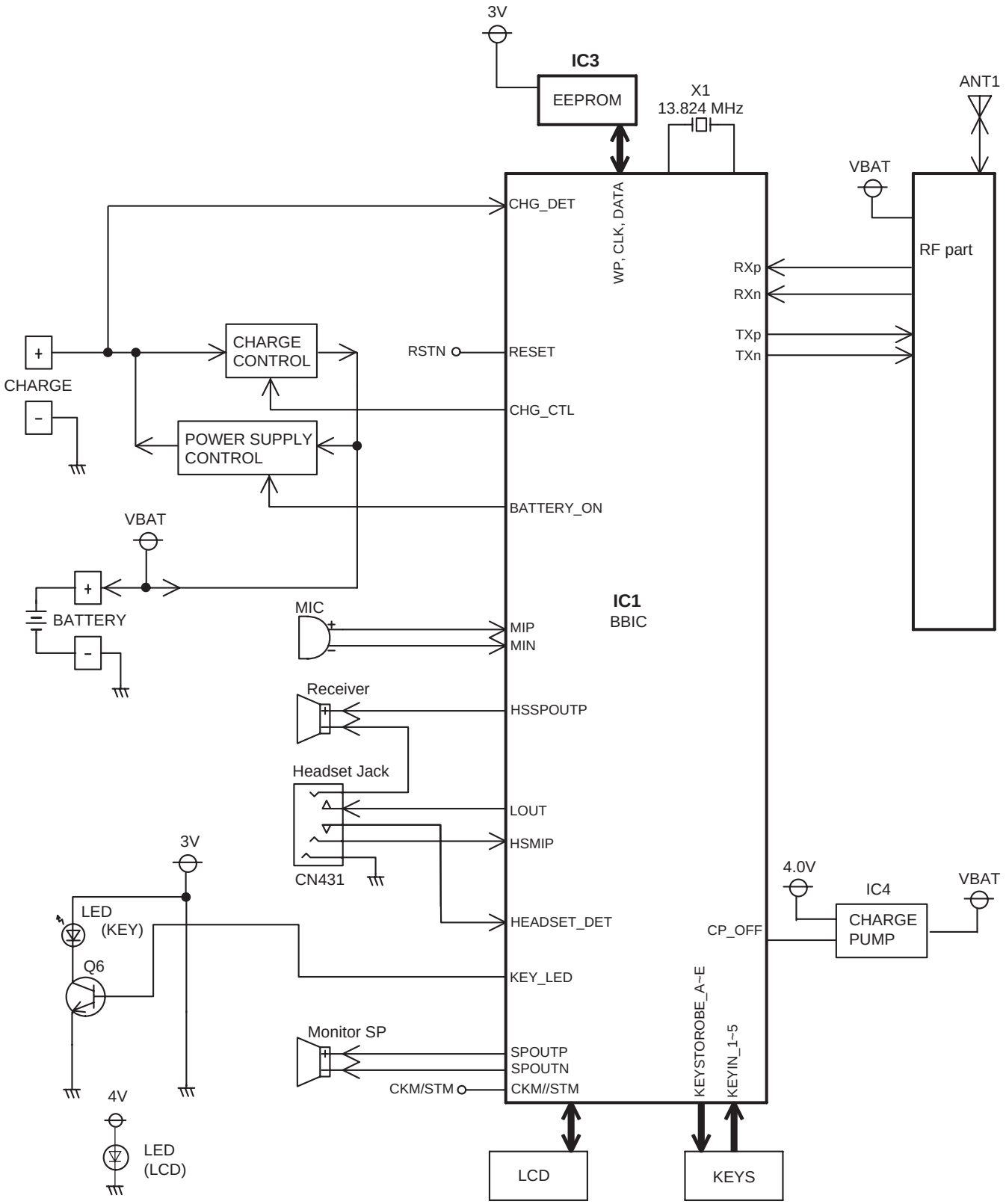
If the unit deems that a telephone connected in parallel is in use, ACK is not returned even if CAS is received, and the information for the second and subsequent callers is not displayed on the portable handset display.

Call Waiting Format



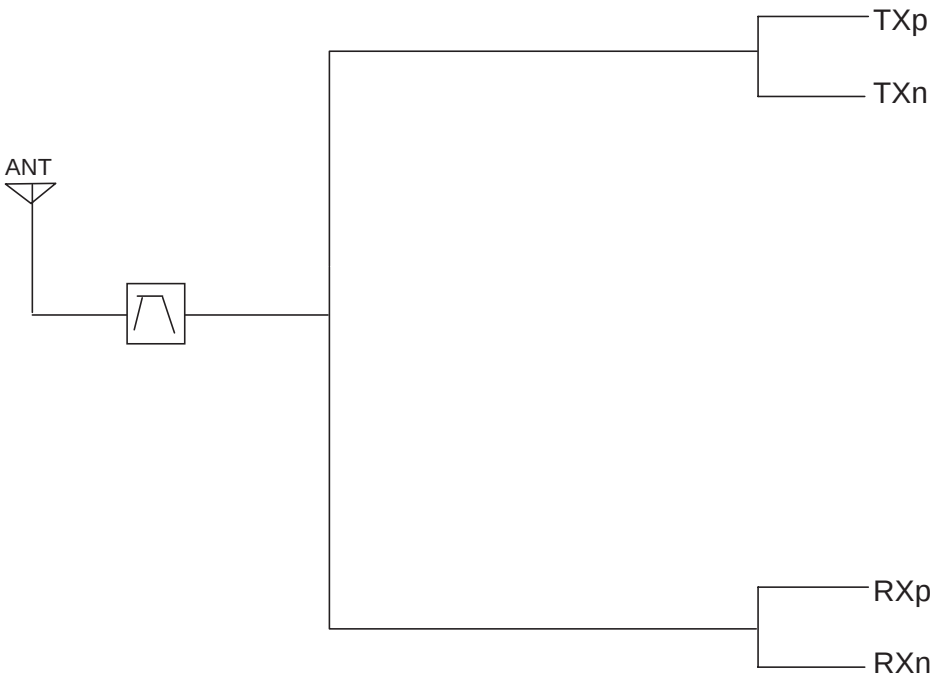


4.7. Block Diagram (Handset)



KX-TGA680 BLOCK DIAGRAM (Handset)

4.8. Block Diagram (Handset_RF Part)



KX-TGA680 BLOCK DIAGRAM (Handset_RF Part)

4.9. Circuit Operation (Handset)

4.9.1. Outline

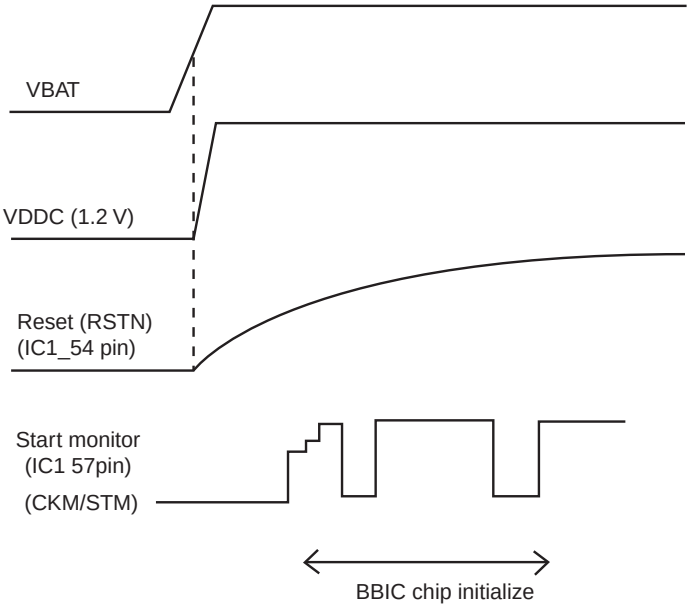
Handset consists of the following ICs as shown in **Block Diagram (Handset)** (P.21).

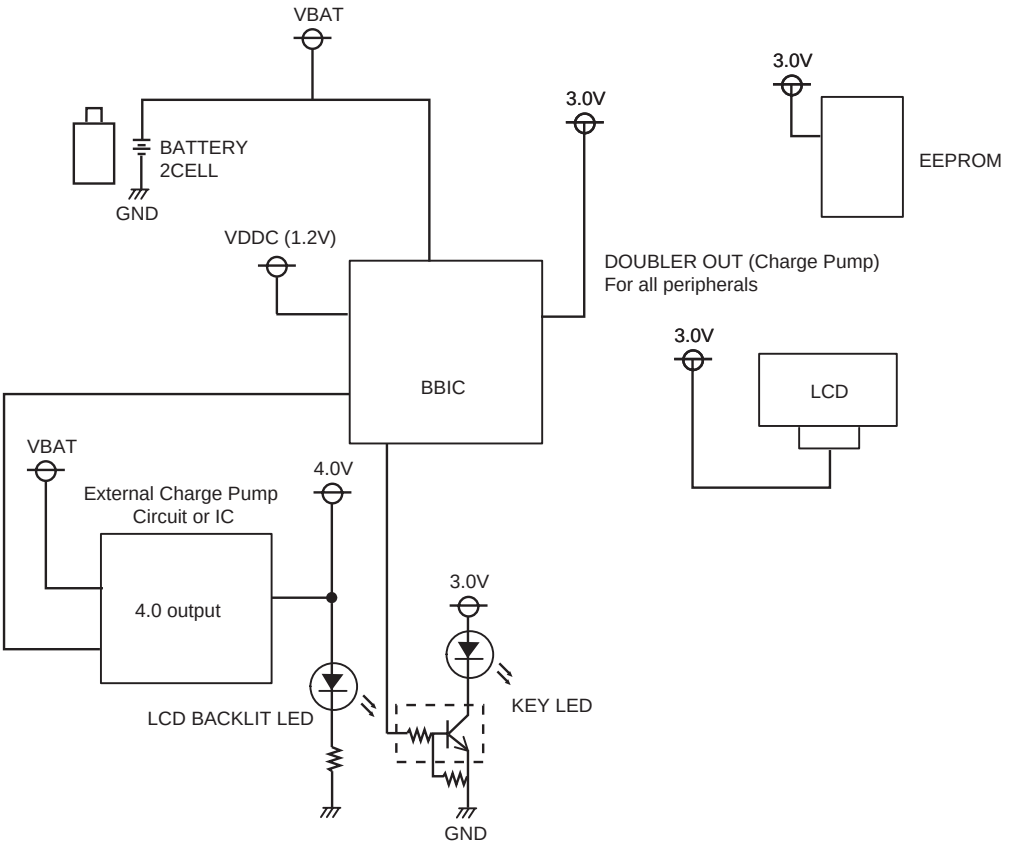
- DECT BBIC (**B**ase **B**and IC): IC1
  - All data signals (forming/analyzing ACK or CMD signal)
  - All interfaces (ex: Key, Detector Circuit, Charge, EEPROM, LCD)
- EEPROM: IC3
  - Setting data is stored. (e.g. ID, user setting)

4.9.2. Power Supply Circuit/Reset Circuit

Circuit Operation:

When powering on the Handset, the voltage is as follows;
BATTERY(2.2 V ~ 2.6 V: BATT+) → F1 → BBC1 (IC1) 10 pin
The Reset signal generates IC1 (54 pin) and 1.8 V.





4.9.3. Charge Circuit

Circuit Operation:

When charging the handset on the Base Unit, the charge current is as follows;

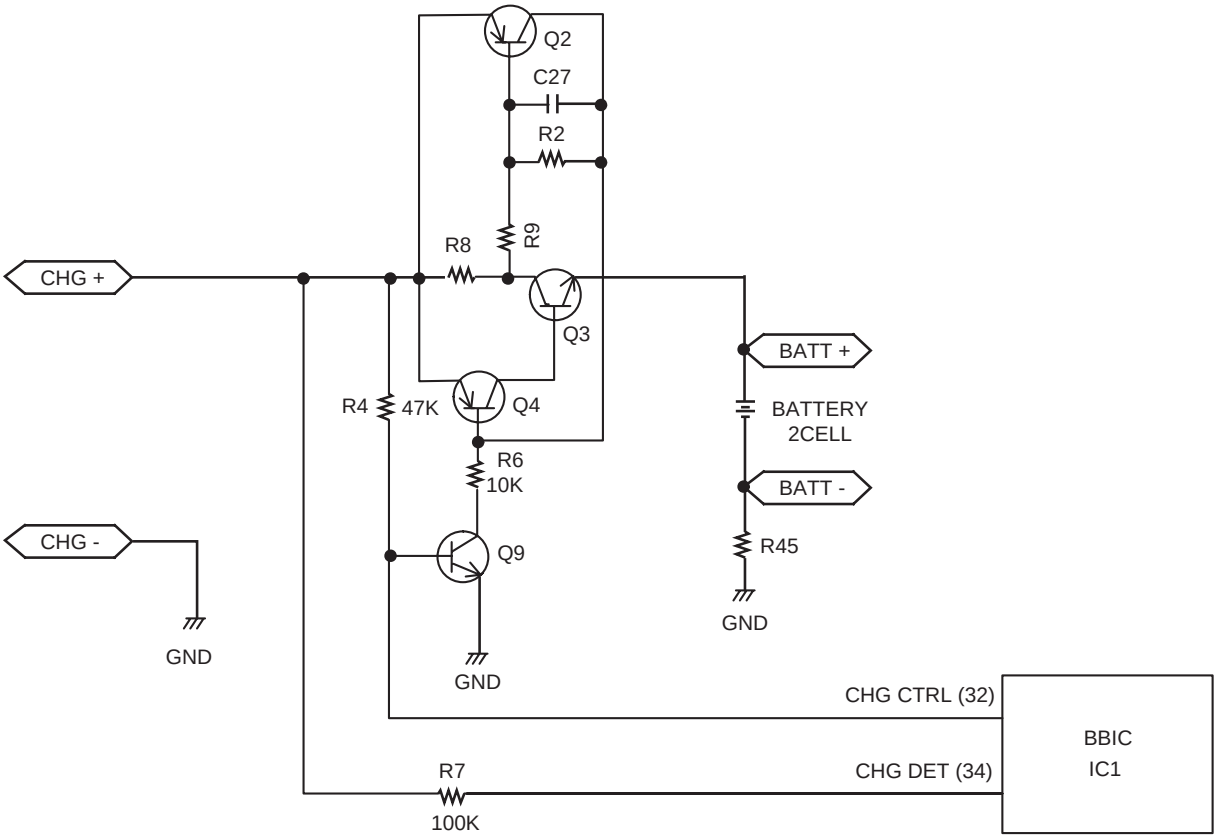
DCP(5.5V) → F301 → R371 → R372 → D362 → CHARGE+(Base) → CHARGE+(Handset) → R8 → Q3 → F1 → BATTERY+... Battery...

BATTERY- → R45 → GND → CHARGE-(Handset)→ CHARGE-(Base) → GND → DC-(GND)

In this way, the BBIC on Handset detects the fact that the battery is charged.

The charge current is controlled by switching Q9 of Handset.

Refer to Fig.101 in **Power Supply Circuit/Reset Circuit** (P.15).



4.9.4. Battery Low/Power Down Detector

Circuit Operation:

"Battery Low" and "Power Down" are detected by BBIC which check the voltage from battery.

The detected voltage is as follows;

- Battery Low

  Battery voltage: V(Batt) ≦ 2.35 V ± 50 mV

  The BBIC detects this level and "▭" starts flashing.

- Power Down

  Battery voltage: V(Batt) ≦ 2.1 V ± 50 mV

  The BBIC detects this level and power down.

4.9.5. Speakerphone

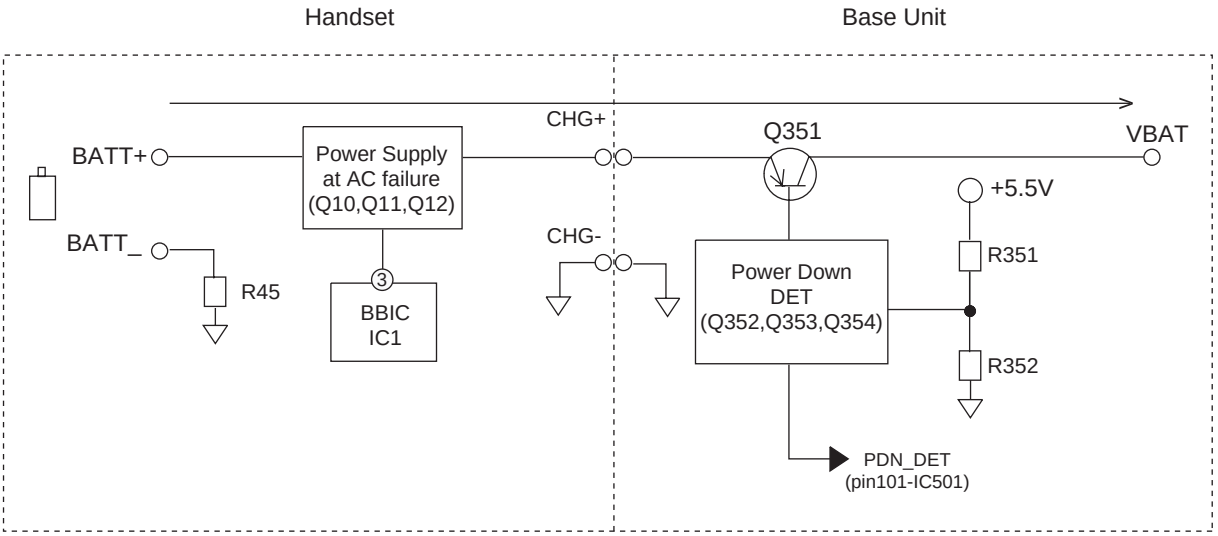
The hands-free loudspeaker at SP+ and SP- is used to generate the ring alarm.

4.10. Behavior of Electric Power Failure

In case that the power from AC adaptor is lost and lose radio waves, BBIC (IC1) turns Q11 ON since handset presumes that base unit's power is falied.

Base unit detects that power voltage of AC adaptor +5.5V is OFF, then turns Q351 ON.

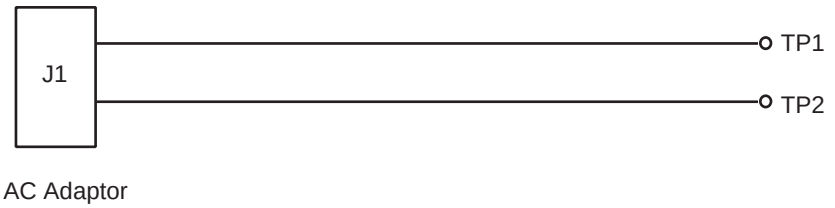
It's possible to use the units during the power failure, supplying power to VBAT of base unit from battery of handset through Q10, CHG terminal and Q351.



4.11. Circuit Operation (Charger Unit)

Charge control is executed at handset side so that the operation when using charger is also controlled by handset.

Refer to **Circuit Operation (Handset)** (P.23)



The route for this is as follows: DC+pin of J1(+) → CHARGE+pad → Handset → CHARGE-pad → DC-pin of J1(-).

4.12. Signal Route

SIGNAL ROUTE	IN → ROUTE → OUT
HANDSET TX	HANDSET MIC - C11/13 - RA4 - IC1(22/23) - **<HANDSET_RF_TX_ROUTE>** - ANT. ---
	ANT. - **<BASE_UNIT_RF_RX_ROUTE>** - IC501(2/3 - 27) - C184 - Q161 -Q141 - D101 - P101 - T/R (TEL LINE)
HANDSET RX	T/R (TEL LINE) - P101 - D101 - Q141 - R165 - C173 - R178 - IC501(25 - 94/95) - **<BASE_UNIT_RF_TX_ROUTE>** - ANT
	--- ANT. - **<HANDSET_RF_RX_ROUTE>** - IC1(28/27) - C16 - L8 - HEADSET_JACK(5 - 4) - HANDSET SPEAKER
HEADSET TX	HEADSET_JACK(2) - C14 - R22 - IC1(25) - **<HANDSET_RF_TX_ROUTE>** - ANT. ---
	ANT. - **<BASE_UNIT_RF_RX_ROUTE>** - IC501(2/3 - 27) - C184 - Q161 -Q141 - D101 - P101 - T/R (TEL LINE)
HEADSET RX	T/R (TEL LINE) - P101 - D101 - Q141 - R165 - C173 - R178 - IC501(25 - 94/95) - **<BASE_UNIT_RF_TX_ROUTE>** - ANT
	--- ANT. - **<HANDSET_RF_RX_ROUTE>** - IC1(28) - C16 - L8 - HEADSET_JACK(5)
HANDSET SP-Phone TX	HANDSET MIC - C11/13 - RA4 - IC1(22/23) - **<HANDSET_RF_TX_ROUTE>** - ANT. ---
	ANT. - **<BASE_UNIT_RF_RX_ROUTE>** - IC501(2/3 - 27) - C184 - Q161 -Q141 - D101 - P101 - T/R (TEL LINE)
HANDSET SP-Phone RX	T/R (TEL LINE) - P101 - D101 - Q141 - R165 - C173 - R178 - IC501(25 - 94/95) - **<BASE_UNIT_RF_TX_ROUTE>** - ANT
	--- ANT. **-<HANDSET_RF_RX_ROUTE>** - IC1(29/31) - Backside SP
BASE SP-Phone TX	MIC - C457/C458 - RA452 - IC501(37/38 - 27) - C184 - Q161 -Q141 - D101 - P101 - T/R (TEL LINE)
BASE SP-Phone RX	T/R (TEL LINE) - P101 - D101 - Q141 - R165 - C173 - R178 - IC501(25 - 41/43) - SPEAKER
CELLULAR TX	HANDSET MIC - C11/13 - RA4 -IC1(22/23) - **<HANDSET_RF_TX_ROUTE>** - ANT. ---
	ANT. - **<BASE_UNIT_RF_RX_ROUTE>** - IC501(2/3 - 80) - IC721(31 - 19) - ANT_BT - CELL PHONE
CELLULAR RX	CELL PHONE - ANT_BT - IC721(19 - 3) - IC501(81 - 94/95) - **<BASE_UNIT_RF_TX_ROUTE>** - ANT
	---ANT.- **<HANDSET_RF_RX_ROUTE>** - IC1(28/27) - C16 - L8 - HEADSET JACK(5-4) - HANDSET SPEAKER
Bluetooth Headset Sound TX(to Tel Line)	from BT Headset - ANT_BT - IC721(19 - 3) - IC501(81 - 27) - C184 - Q161 -Q141 - D101 - P101 - T/R (TEL LINE)
Bluetooth Headset Sound RX(from Tel Line)	T/R (TEL LINE) - P101 - D101 - Q141 - R165 - C173 - R178 - IC501(25 - 80) - IC721(31 - 19) - ANT_BT - to BT Headset

Note:

[ ]: inside of Handset

SIGNAL ROUTE	IN → ROUTE → OUT
INTERCOM HANDSET TO BASE UNIT	HANDSET MIC - C11/13 - RA4 - IC1(22/23) - **<HANDSET_RF_TX_ROUTE>** - ANT. ---
	ANT - **<BASE_UNIT_RF_RX_ROUTE>** - IC501(2/3 - 41/43) - SPEAKER
INTERCOM BASE UNIT TO HANDSET	MIC - C457/C458 - RA452 - IC501(37/38 - 94/95) - **<BASE_UNIT_RF_TX_ROUTE>** - ANT
	--- ANT. - **<HANDSET_RF_RX_ROUTE>** - IC1(28/27) - C16 - L8 - HEADSET_JACK(5 - 4) - HANDSET SPEAKER
GREETING RECORDING	HANDSET MIC - C11/13 - RA4 - IC1(22/23) - **<HANDSET_RF_TX_ROUTE>** - ANT. ---
	ANT - **<BASE_UNIT_RF_RX_ROUTE>** - IC501(2/3 - 69/70) - IC601
GREETING PLAY TO TEL LINE	IC601 - IC501(69/70 - 27) - C184 - Q161 -Q141- D101 - P101 - T/R (TEL LINE)
ICM RECORDING	T/R (TEL LINE) - P101 - D101 - Q141 - R165 - C173 - R178 - IC501(25 - 69/70) - IC601
ICM PLAY TO SPEAKER	IC601 - IC501(69/70 - 41/43) - SPEAKER
DTMF SIGNAL TO TEL LINE	IC501(27) - C184 - Q161 -Q141- D101 - P101 - T/R (TEL LINE)
CALLER ID	T/R(TEL LINE) - P101 - C105/C106 - R105/R106 - RA101 -IC501(23/21)
BELL DETECTION	T/R(TEL LINE) - C105 - R105 - R110 - R111 - R112 - IC501(18)

Note:

[ ]: inside of Handset

RF part signal route

SIGNAL ROUTE	IN → ROUTE → OUT
HANDSET RF [TX_ROUTE]	IC1(44/45) - C802 - C808 - ANT
HANDSET RF [RX_ROUTE]	ANT - C808 - C801 - IC1(46/47)
BASE UNIT RF [TX_ROUTE]	IC501(95/94) - C859 - DA802 - C851/C853 - ANT1/ANT2
BASE UNIT RF [RX_ROUTE]	ANT1/ANT2 - C851/C853 - DA802 - IC501(3/2)

Note:

[ ]: inside of Handset

5 Location of Controls and Components

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

6 Installation Instructions

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

7 Operating Instructions

Refer to the Operating Instructions.

Note:

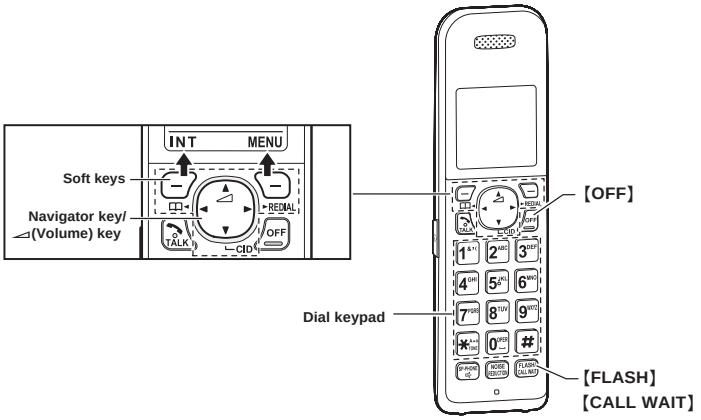
You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

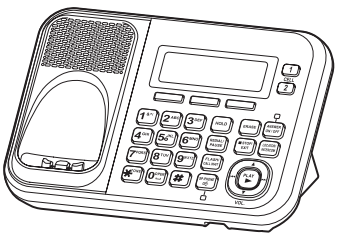
8 Test Mode

8.1. Engineering Mode

8.1.1. Base Unit

Important:
Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.





H/S key operation

1). Press【MENU】.

2). Select "Initial setting" using【▲】or【▼】
then press【SELECT】or【►】.

Select "Set tel line" using【▲】or【▼】
then press【SELECT】or【►】.

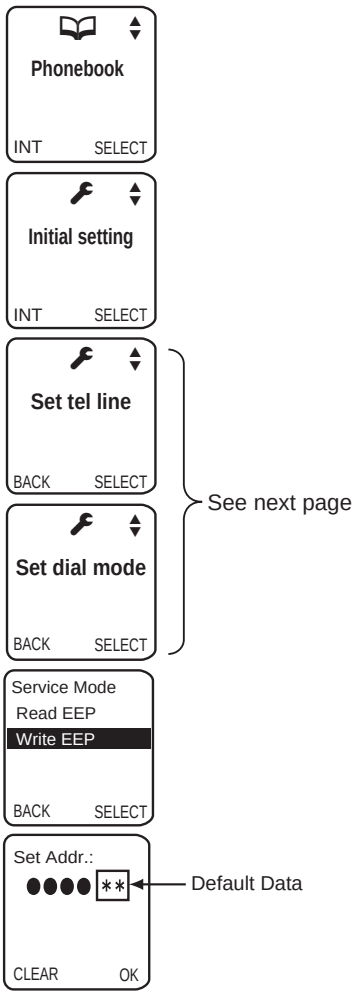
3). Enter "7", "2", "6", "2", "7", "6", "6", "4".
Note: 7262 7664 = PANA SONI
(see letters printed on dial keys)

4). Select "Write EEP" using【▲】or【▼】
then press【SELECT】or【►】.

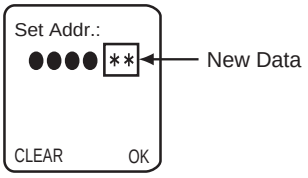
5). Enter "●", "●", "●", "●" (Address). (*1)

6). Enter "＊", "＊" (New Data). (*1)

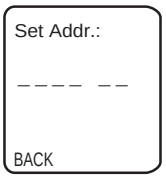
H/S LCD



7). Press【OK】, a long confirmation beep will be heard.



8). Press【**OFF**】to return to standby mode.
After that, turn the base unit power off and then power on.



Note: * To enter "Set dial mode", press【SELECT】or【►】at " Set tel line".
It is necessary to turn on the power of base unit.
* "Set tel line" isn't displayed in Cell line only mode.
To return to normal mode, execute the following procedure:

1 【MENU】⟶【#】【1】【5】【7】
2 【▼】/【▲】: Select "off "⟶**【SELECT】**
3 【OFF】

Frequently Used Items (Base Unit)
ex.)

Items	Address	Default Data	New Data		Remarks
Frequency	00 07 / 00 08	70/02	-	-	Use these items in a **READ-ONLY** mode to confirm the contents. Careless rewriting may cause serious damage to the computer system.
ID	00 02 ~ 00 06	Given value	-	-	

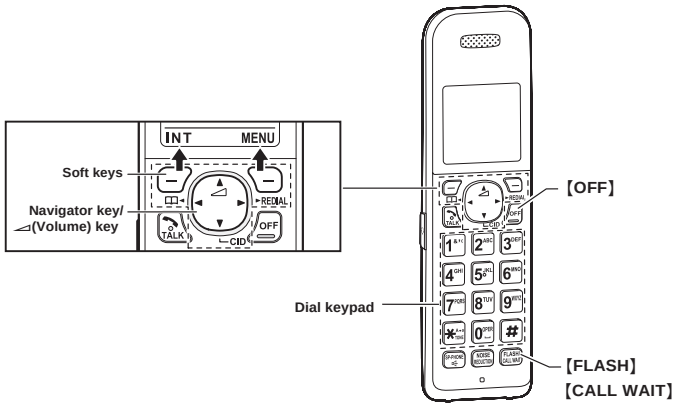
Note:
(*1) When you enter the address or New Data, please refer to the table below.

Desired Number (hex)	Input Keys	Desired Number (hex)	Input Keys
0	0	A	[Flash] + 0
1	1	B	[Flash] + 1
.	.	C	[Flash] + 2
.	.	D	[Flash] + 3
.	.	E	[Flash] + 4
9	9	F	[Flash] + 5

8.1.2. Handset

Important:

Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.



H/S key operation

1). Press【MENU】.

2). Select "Initial setting" using【▲】or【▼】 then press【SELECT】or【►】.

3). Enter "7", "2", "6", "2", "7", "6", "6", "4".
Note: 7262 7664 = PANA SONI
(see letters printed on dial keys)

4). Select "Write EEP" using【▲】or【▼】 then press【SELECT】or【►】.

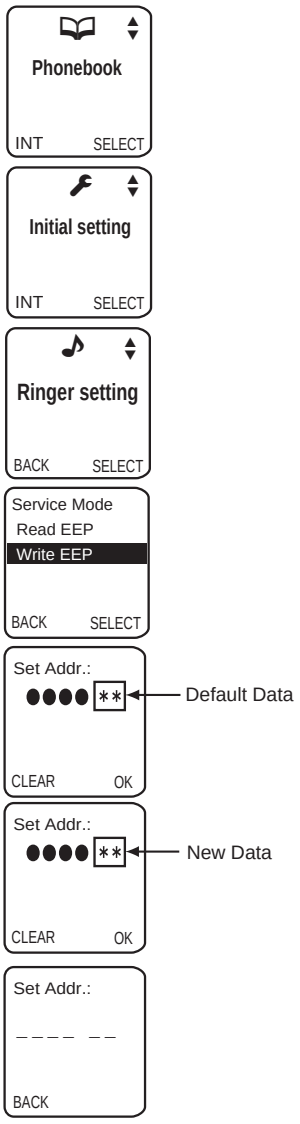
5). Enter "●", "●", "●", "●" (Address). (*1)

6). Enter "＊", "＊" (New Data). (*1)

7). Press【OK】, a long confirmation beep will be heard.

8). Press【OFF】to return to standby mode.
After that, remove and reinsert the batteries. Press the Power button for about 1 second if the power is not turned on.

H/S LCD



Frequently Used Items (Handset)

ex.)

Items	Address	Default Data	New Data	Possible Adjusted Value MAX (hex)	Possible Adjusted Value MIN (hex)	Remarks
Battery Low	00 12/00 13	00 / 00	-	-	-	(*2)
Frequency	00 07 / 00 08	00 / 01	-	-	-	
ID	00 02 ~ 00 06	Given value	-	-	-	

Note:

(*1) When you enter the address or New Data, please refer to the table below.

Desired Number (hex.)	Input Keys		Desired Number (hex.)	Input Keys
0	0		A	[Flash] + 0
1	1		B	[Flash] + 1
.	.		C	[Flash] + 2
.	.		D	[Flash] + 3
.	.		E	[Flash] + 4
9	9		F	[Flash] + 5

(*2) Use these items in a READ-ONLY mode to confirm the contents. Careless rewriting may cause serious damage to the handset.

9 Service Mode

9.1. How to Clear User Setting (Handset Only)

Handset

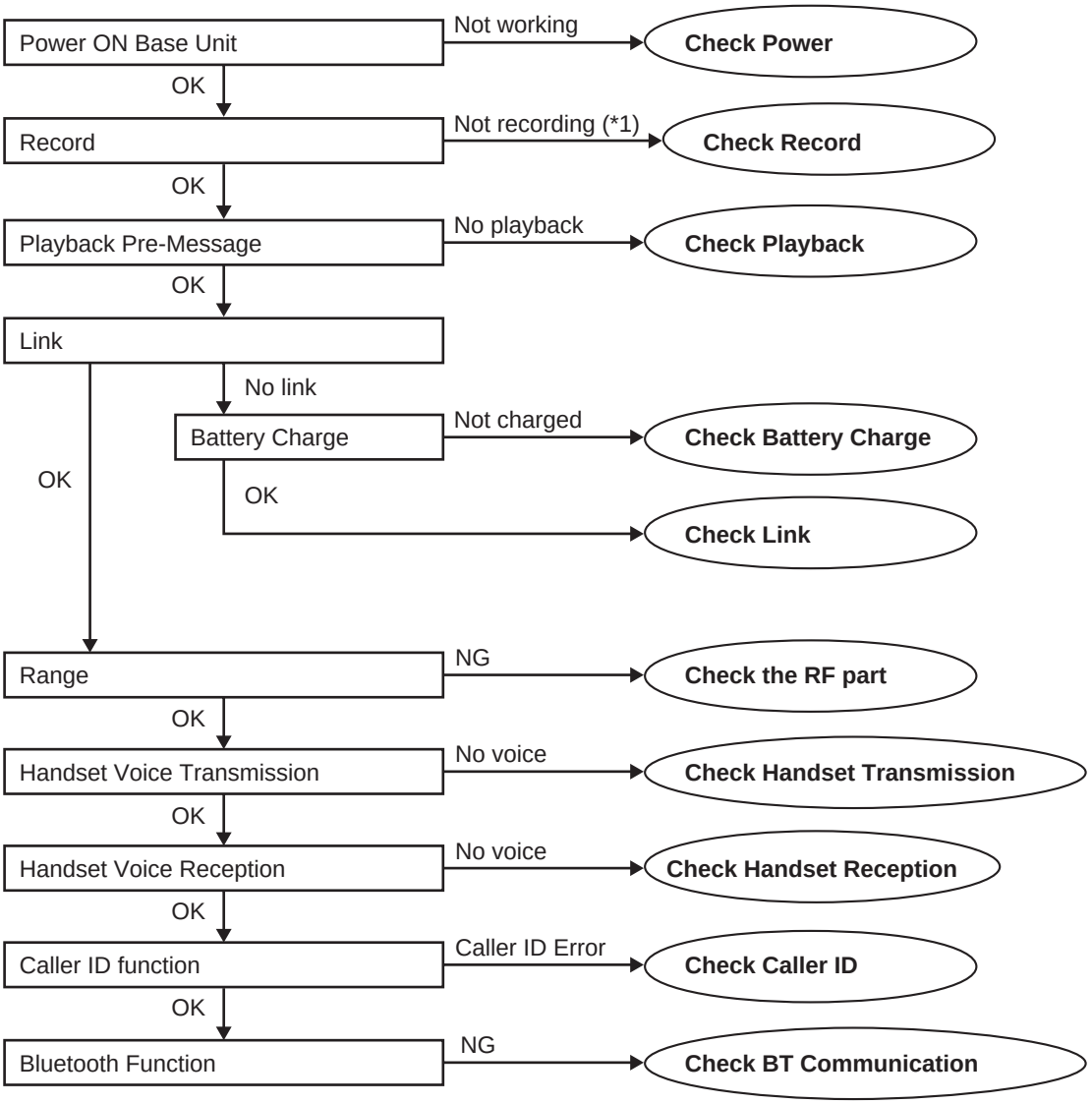
Press 2,5,8,0 simultaneously until a beep sound is heard. Then single handset is initialized.
(The contents of user setting are reset to factory default)

*Usage time is not cleared.

10 Troubleshooting Guide

10.1. Troubleshooting Flowchart

FLOW CHART



Cross Reference:

Check Power (P.35)
Check Record (P.36)
Check Playback (P.39)
Check Battery Charge (P.39)
Check Link (P.40)
Check the RF part (P.42)
Check Handset Transmission (P.47)
Check Handset Reception (P.47)
Check Caller ID (P.47)
Check BT Communication (P.48)

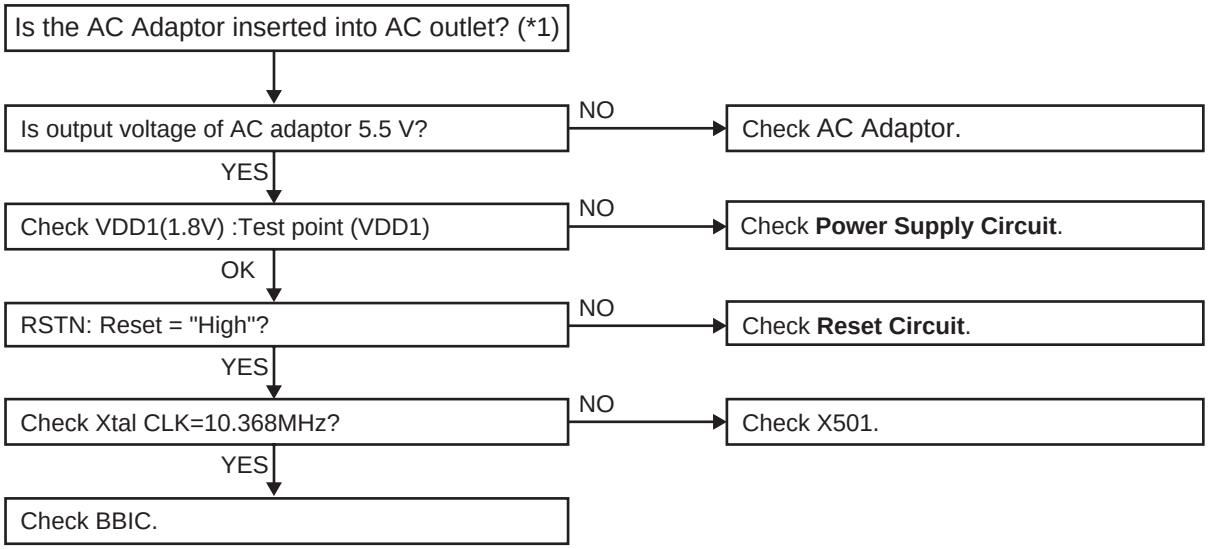
Note:

(*1) When a user claims that the unit disconnects a call right after the greeting message and no incoming messages can be recorded, this symptom can not reappear with TEL simulator in the service center. In this case, try to change the Auto disconnect activation time and Vox level.

<How to change the Auto Disconnect activation time and VOX level> (P.37) item (A) and (B).

10.1.1. Check Power

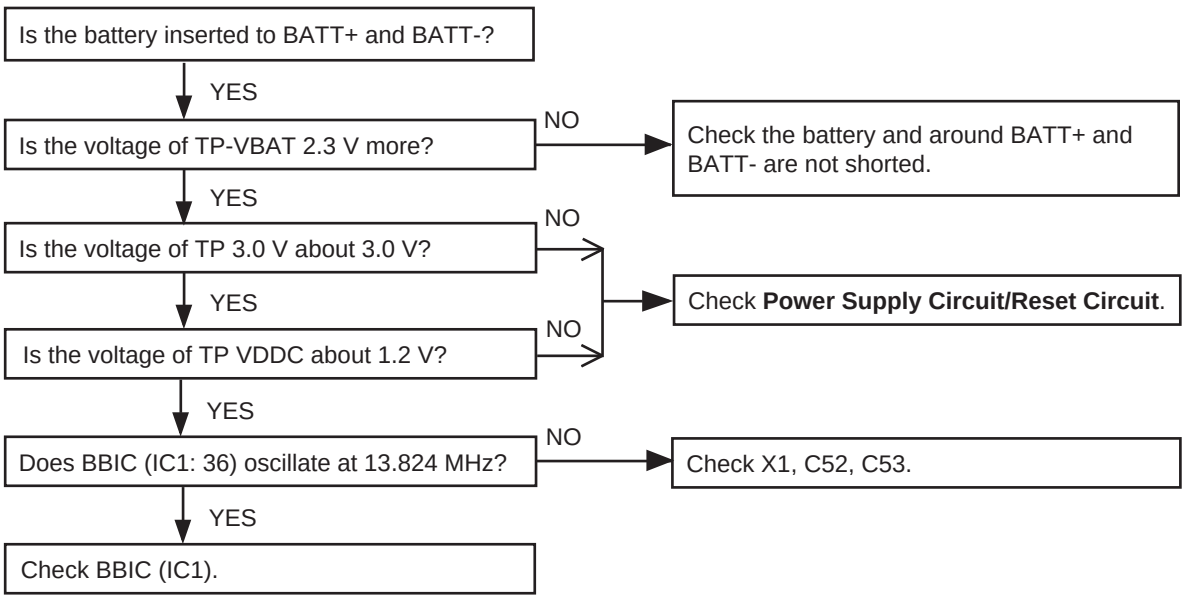
10.1.1.1. Base Unit



Cross Reference:
Power Supply Circuit/Reset Circuit (P.15)

Note:
BBIC is IC501.
(*1) Refer to **Specifications** (P.7) for part number and supply voltage of AC adaptor.
(*2) Refer to **Circuit Board (Base Unit_Main)** (P.83).

10.1.1.2. Handset

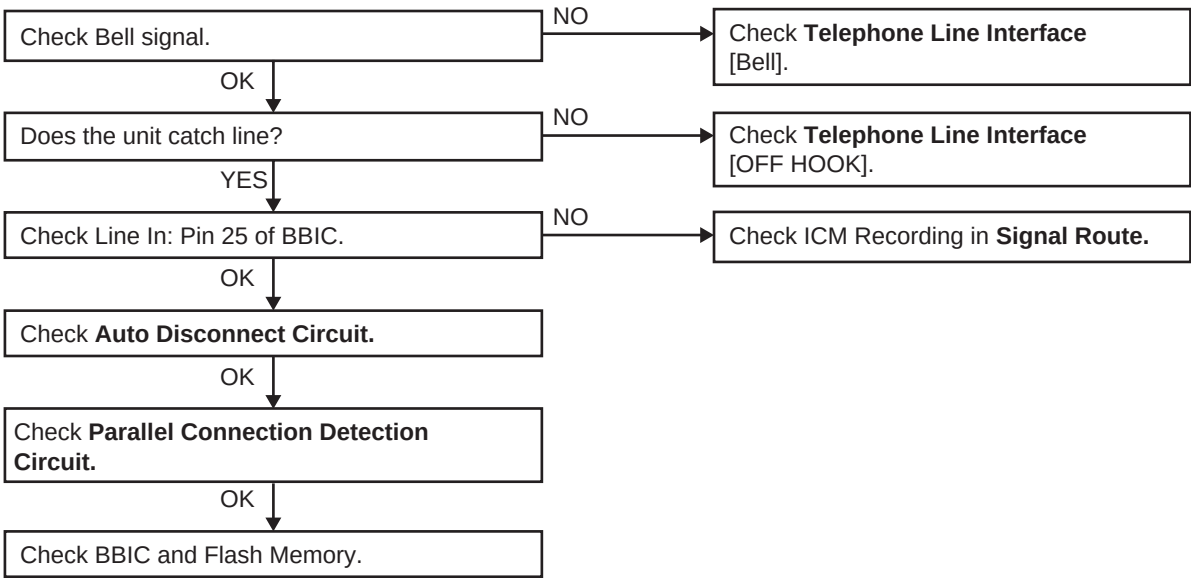


Cross Reference:
Power Supply Circuit/Reset Circuit (P.23)

10.1.2. Check Record

10.1.2.1. Base Unit

Not record Incoming Message



Cross Reference:

Signal Route (P.26)

Telephone Line Interface (P.17)

Parallel Connection Detect Circuit/Auto Disconnect Circuit (P.18)

Note:

Flash Memory is IC601.

BBIC is IC501.

<How to change the Auto Disconnect activation time and VOX level>

A) Auto Disconnect activation time:

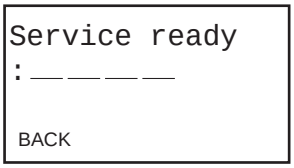
Some Telephone Company lines (fiber or cable) ON Hook and OFF Hook voltages are lower than conventional lines, which may cause a malfunction of Auto Disconnect detection. To solve this problem, try changing the Auto Disconnect activation through the procedures below.

1) Press "MENU " key at standby Mode and "#" key.

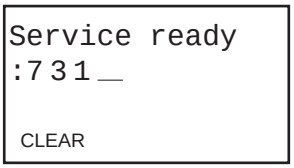
Note: The set must power on and be linked.

2) Press "9", "0", "0", "0"," ∗" .

LCD (H/S)



3) Press "7","3","1".



4) Then enter the below last digit;

last digit	"0"	Auto disconnect & CPC : enable(*1) ・・・ [default]
	"1"	Auto disconnect : enable(*1) CPC : disable
	"2"	Auto disconnect & CPC : disable(*2)

Note:

(*1) Both Auto Disconnect and CPC don't detect for the first 2 seconds.

(*2) If the "Disable" is selected, even if the parallel-connected telephone is OFF HOOK, the line isn't disconnected.

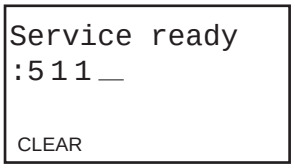
5) Back to "standby" mode automatically after step 4).
You can hear beep sound which is a confirmation tone.

B) Vox level:

It makes easier to detect a small voice (caller) by raising the sensitivity of VOX level. Therefore, the recording of TAM is not turned off during detection.

1) ~ 2) are same as (A).

3) Press "5","1","1".



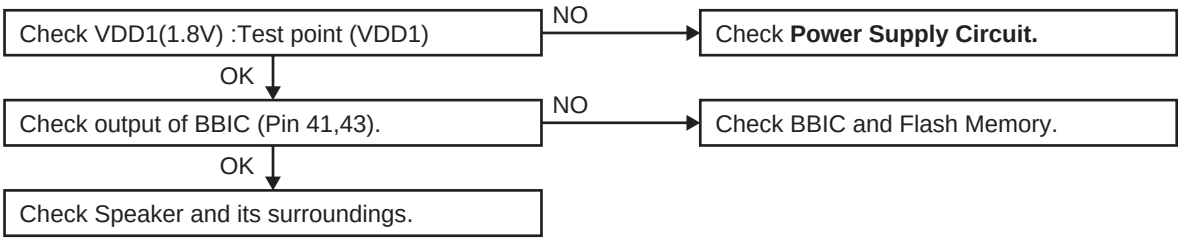
4) Then enter the below last digit;

last digit	"0"	default setting : normal
	"1"	6dB up

5) Back to "standby" mode automatically after step 4.
You can hear beep sound which is a confirmation tone.

10.1.3. Check Playback

10.1.3.1. Base Unit

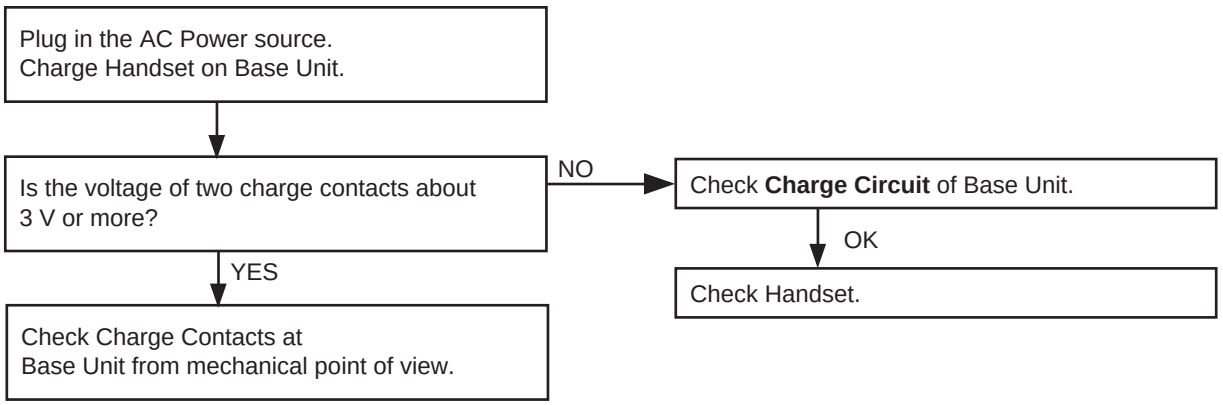


Cross Reference:
Power Supply Circuit/Reset Circuit (P.15)

Note:
Flash Memory is IC601.
BBIC is IC1.
(*1) Refer to **Circuit Board (Base Unit_Main)** (P.83).

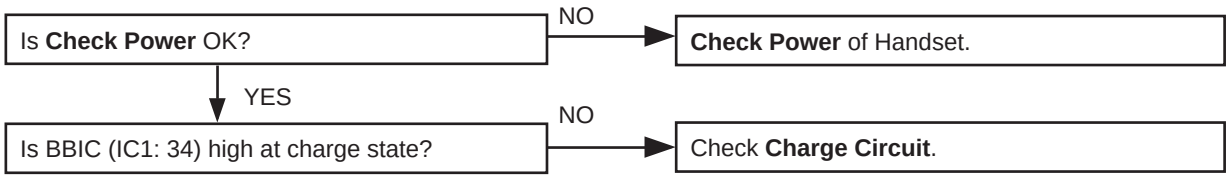
10.1.4. Check Battery Charge

10.1.4.1. Base Unit



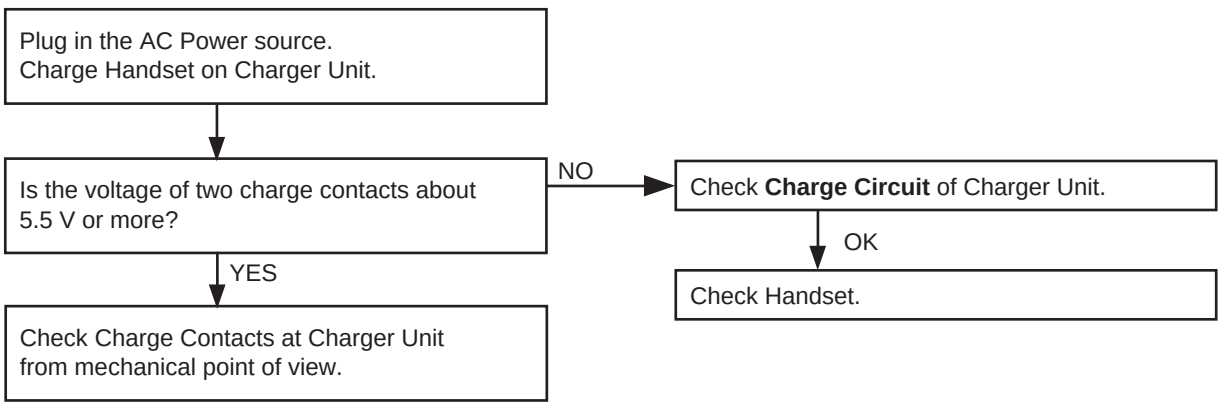
Cross Reference:
Charge Circuit (P.16)

10.1.4.2. Handset



Cross Reference:
Check Power (P.35)
Charge Circuit (P.24)

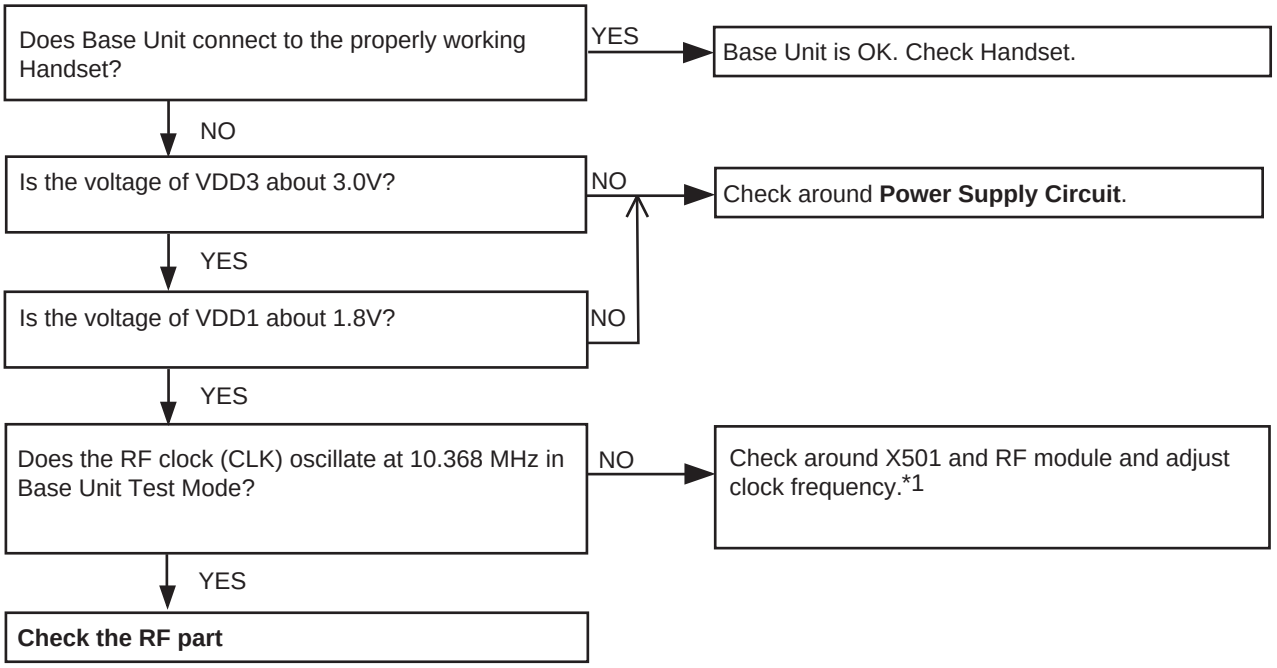
10.1.4.3. Charger Unit



Cross Reference:
Charge Circuit (P.24)

10.1.5. Check Link

10.1.5.1. Base Unit



Cross Reference:

Power Supply Circuit/Reset Circuit (P.15)

Check the RF part (P.42)

Note:

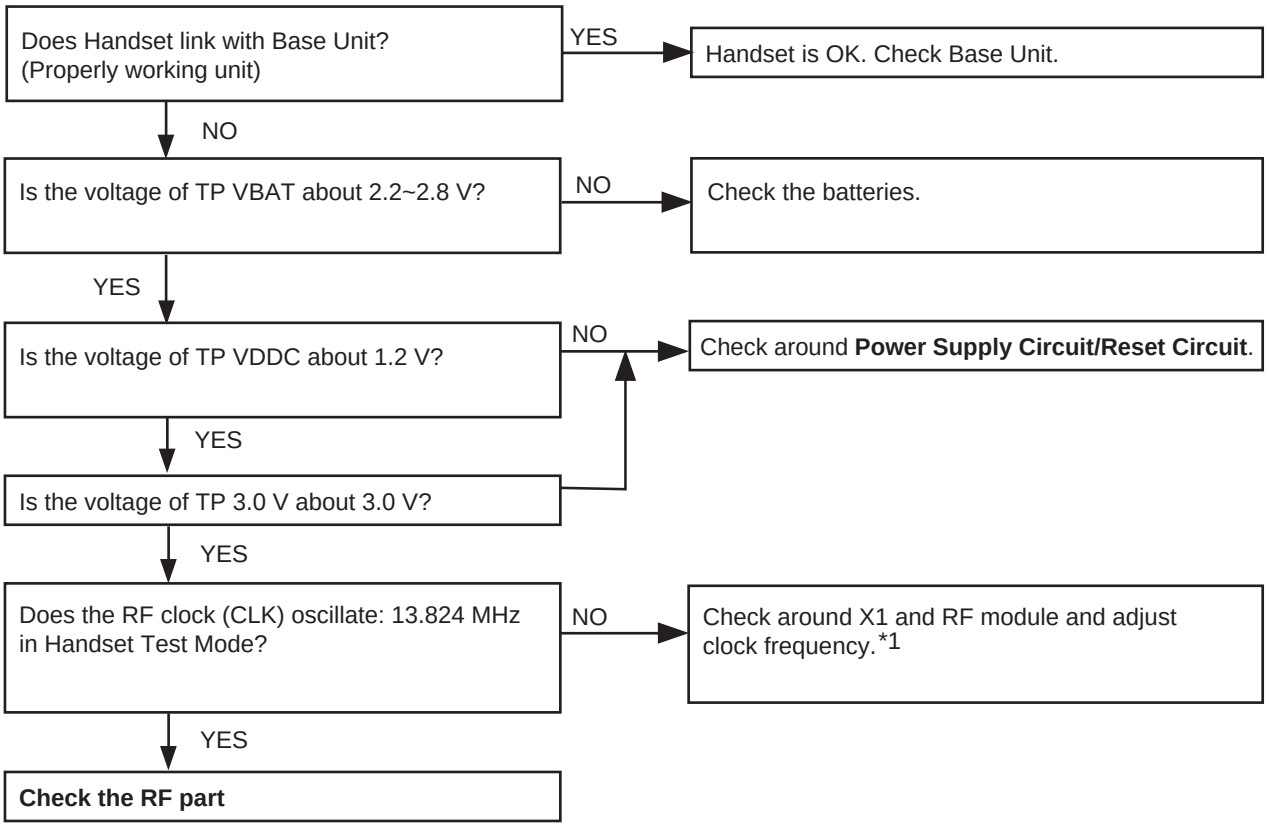
Refer to **Things to Do after Replacing IC or X'tal** (P.57)(P.63) for Base Unit.

*1 How to adjust the frequency of X501:

To see the frequency, execute the command “SFR“, then check the TP_CKM (IC501-57pin).

To adjust frequency, send command “SFR ␣○○␣○○“until the frequency counter becomes10.368 MHZ±55HZ.

10.1.5.2. Handset



Cross Reference:

Power Supply Circuit/Reset Circuit (P.23)

Check the RF part (P.42)

Note:

Refer to **Things to Do after Replacing IC or X'tal** (P.58)(P.65) for Handset.

*1 How to adjust the frequency of X1:

To see the frequency, execute the command “SFR“, then check the TP_CKM (IC1-57pin).

To adjust frequency, send command “SFR ␣○○␣○○“until the frequency counter becomes13.824 MHz±55HZ.

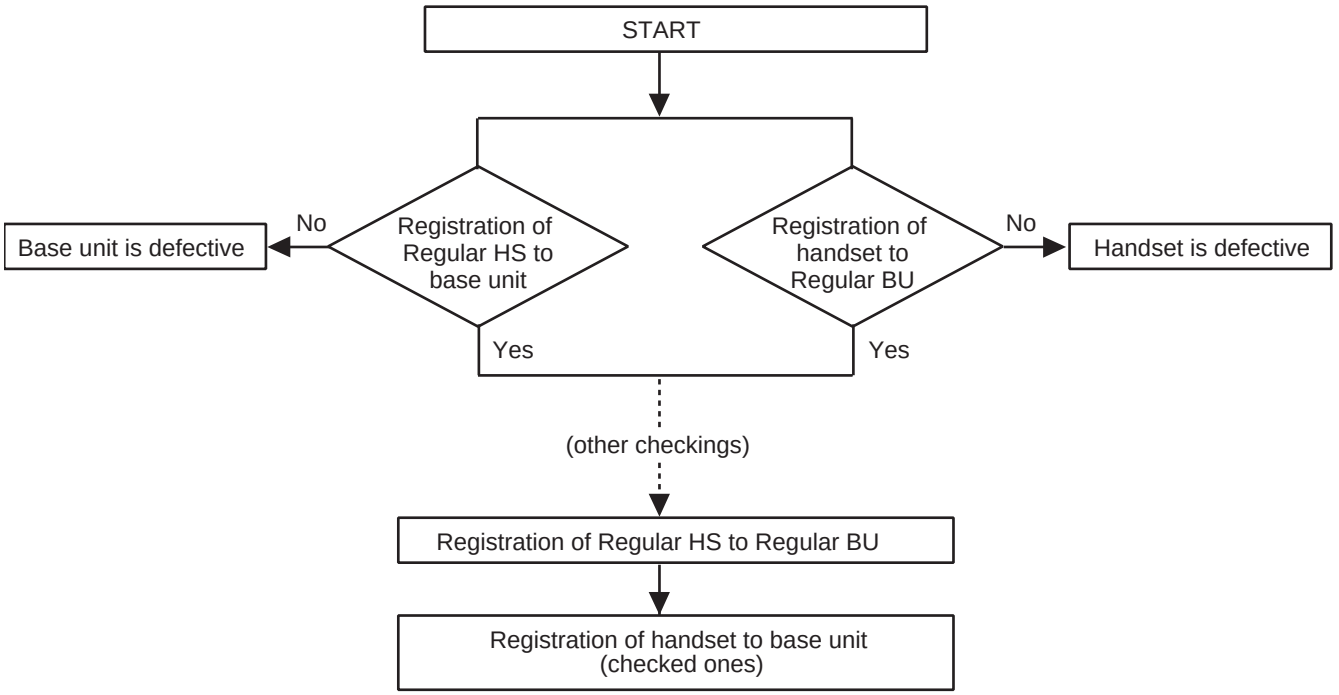
10.1.6. Check the RF part

10.1.6.1. Finding out the Defective part

1. Prepare Regular HS(*1) and Regular BU(*2).
2. a. Re-register regular HS (Normal mode) to base unit (to be checked).
   If this operation fails in some ways, the base unit is defective.
   b. Re-register handset (to be checked) to regular BU (Normal mode).
   If this operation fails in some ways, the handset is defective.

After All the Checkings or Repairing

1. Re-register the checked handset to the checked base unit, and Regular HS to Regular BU.



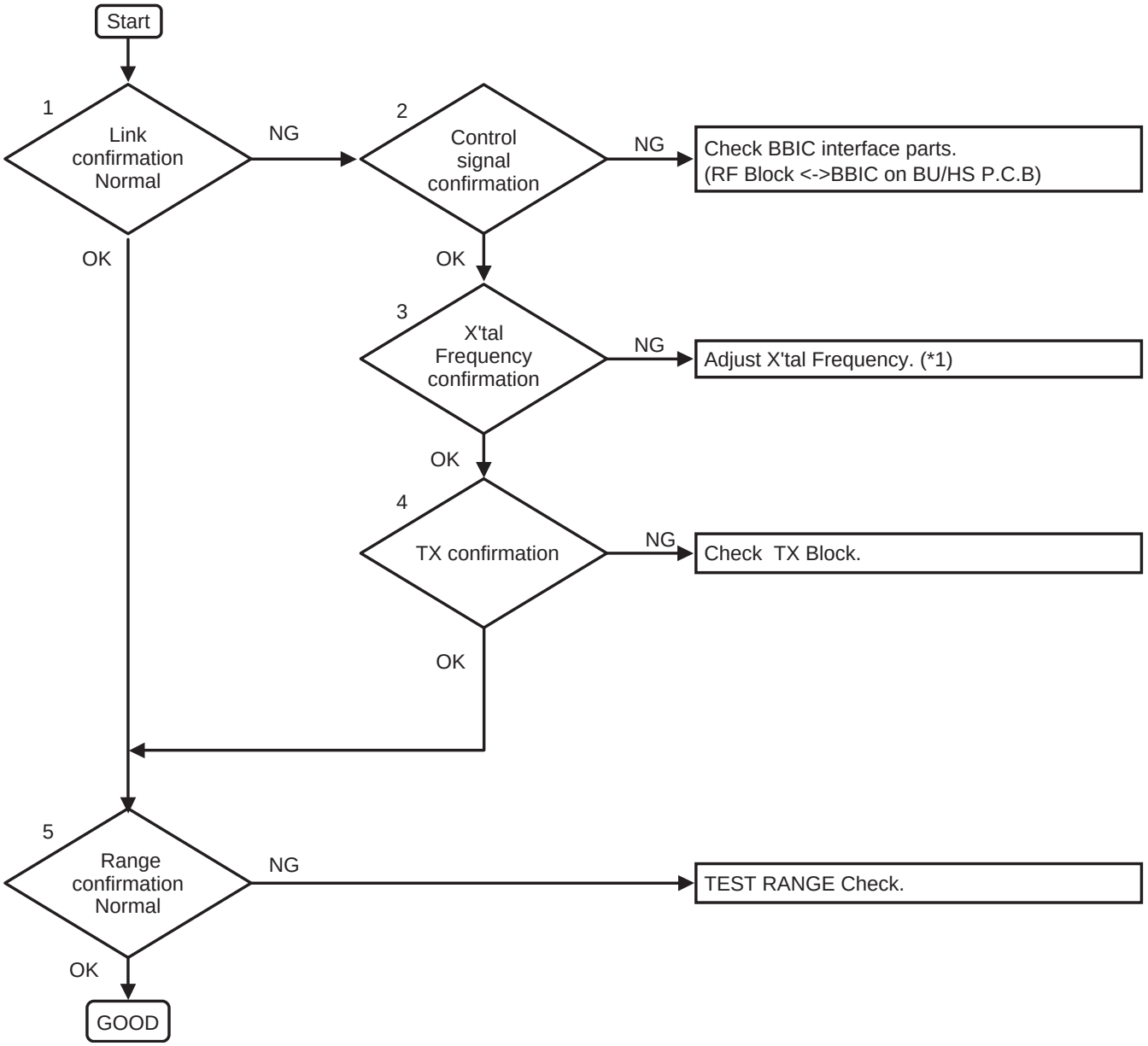
Note:

(*1) HS: Handset

(*2) BU: Base Unit

10.1.6.2. RF Check Flowchart

Each item (1 ~ 5) of RF Check Flowchart corresponds to **Check Table for RF part** (P.44).
Please refer to the each item.



Note:

(*1) Refer to **Check Link** (P.40).

10.1.6.3. Check Table for RF part

No.	Item	BU (Base Unit) Check	HS (Handset) Check
1	Link Confirmation Normal HS, BU Mode [Normal Mode]	1. Register Regular HS to BU (to be checked). 2. Press [Talk] key of the Regular HS to establish link.	1. Register HS (to be checked) to Regular BU. 2. Press [Talk] key of the HS to establish link.
2	X'tal Frequency confirmation HS, BU Mode: [Adjustment]	Check X'tal Frequency. (10.368 MHz ±100Hz)	Check X'tal Frequency. (13.824 MHz ±100 Hz)
3	TX confirmation HS Mode: HS_Burst Mode] (*1) BS Mode: BS_Burst Mode] (*1)	1. Remove wire antenna 2 and connect spectrum analyzer to TP. (*2) 2. Confirm TX power whether spec. is satisfied. Power >=13.5dBm	1. Connect spectrum analyzer to TP. (*3) 2. Confirm TX power whether satisfied spec. Power >=16.0dBm
4	Range Confirmation Normal HS, BU Mode: [Normal Mode]	1. Register Regular HS to BU (to be checked). 2. Press [Talk] key of the Regular HS to establish link. 3. Compare the range of the BU (being checked) with that of the Regular BU.	1. Register HS (to be checked) to Regular BU. 2. Press [Talk] key of the HS to establish link. 3. Compare the range of the HS (being checked) with that of the Regular HS.

Note:

(*1) Refer to **Commands** (P.60)

(*2) **Adjustment Standard (Base Unit)** (P.61)

(*3) **Adjustment Standard (Handset)** (P.62)

10.1.6.4. TEST RANGE Check

Circuit block which range is defective can be found by the following check.

Item	BU (Base Unit) Check	HS (Handset) Check
Range Confirmation TX TEST (TX Power check) HS, BU setting Checked unit: Low TX power (*1) Regular unit: High TX power (*1)	1. Register Regular HS to BU (to be checked). 2. Set TX Power of the BU and the Regular HS according to CHART1. 3. At distance of about 20m between HS and BU, Link OK = TX Power of the BU is OK. No Link = TX Power of the BU is NG.	1. Register HS (to be checked) to Regular BU. 2. Set TX Power of the HS and the Regular BU according to CHART1. 3. At distance of about 20m between HS and BU, Link OK = TX Power of the HS is OK. No Link = TX Power of the HS is NG.
Range Confirmation RX TEST (RX sensitivity check) HS, BU setting Checked unit: High TX power (*1) Regular unit: Low TX power (*1)	1. Register Regular HS to BU (to be checked). 2. Set TX Power of the BU and the Regular HS according to CHART1. 3. At distance of about 20m between HS and BU, Link OK= RX Sensitivity of the BU is OK. No Link = RX Sensitivity of the BU is NG.	1. Register HS (to be checked) to Regular BU. 2. Set TX Power of the Checking HS and the Regular BU according to CHART1. 3. At distance of about 20m between HS and BU, Link OK= RX Sensitivity of the HS is OK. No Link = RX Sensitivity of the HS is NG

CHART1: Setting of TX Power and RX Sensitivity in Range Confirmation TX TEST, RX TEST

	BU (to be checked)	Regular_HS
	TX Power	TX Power
BU (Base Unit) TX Power Check	Low	Hig h
BU (Base Unit) RX Sensitivity Check	High	**Low**

	HS (to be checked)	Regular_BU
	TX Power	TX Power
HS (Handset) TX Power Check	Low	High
HS (Handset) RX Sensitivity Check	High	**Low**

Note:

(*1) Refer to **Commands** (P.60).

10.1.7. Registering a Handset to the Base Unit

The supplied handset and base unit are pre-registered. If for some reason the handset is not registered to the base unit, re-register the handset.

1 **Handset:**
【MENU】 → #130
2 **Base unit:**
Press and hold **【LOCATOR】** for about 5 seconds until the registration tone sounds.
- If all registered handsets start ringing, press **【LOCATOR】** again to stop, then repeat this step.
- The next step must be completed within 90 seconds.

3 **Handset:**
Press **【OK】**, then wait until a long beep sounds.

Note:
- While registering, **"Base in registering"** is displayed on all registered handsets.
- When you purchase an additional handset, refer to the additional handset's installation manual for registration.

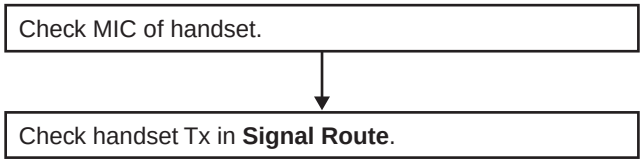
10.1.8. Deregistering a Handset

A handset can cancel its own registration to the base unit, or other handsets registered to the same base unit. This allows the handset to end its wireless connection with the system.

1 **【MENU】** → #131
- All handsets registered to the base unit are displayed.

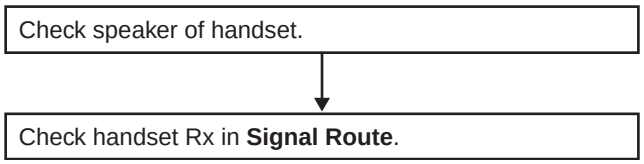
2 **【▲▼】**: Select the handset you want to cancel. → **【SELECT】**
3 **【▲▼】**: **"Yes"** → **【SELECT】**
4 **【OFF】**

10.1.9. Check Handset Transmission



Cross Reference:
Signal Route (P.26)

10.1.10. Check Handset Reception

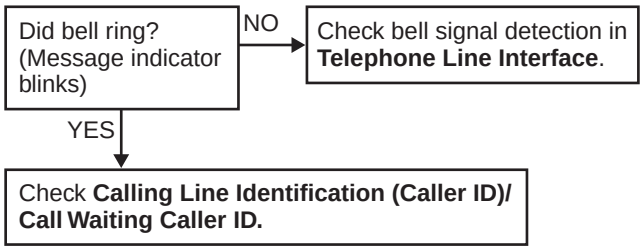


Cross Reference:
Signal Route (P.26)

Note:
When checking the RF part, Refer to **Check the RF part** (P.42).

10.1.11. Check Caller ID

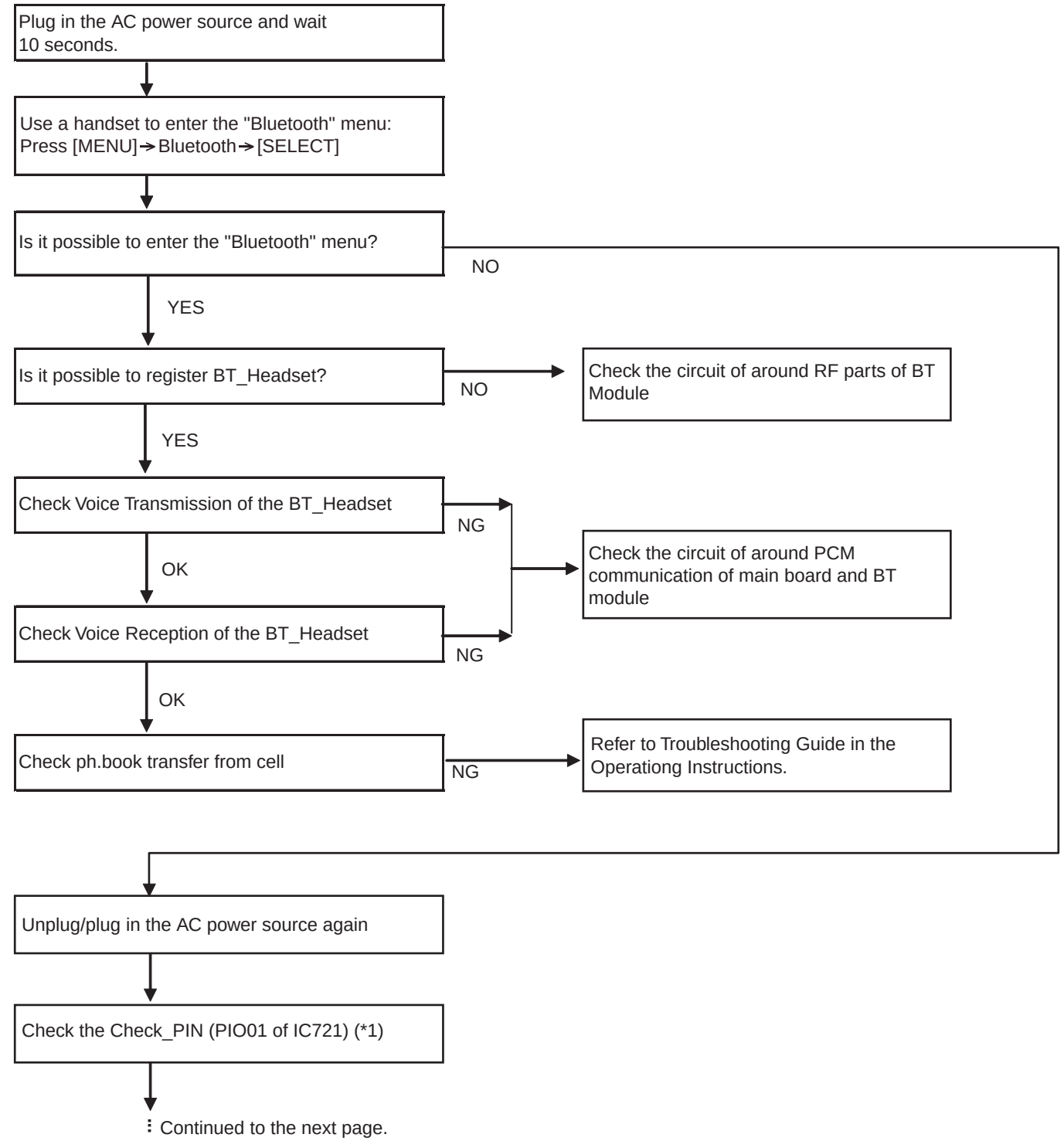
BASE UNIT



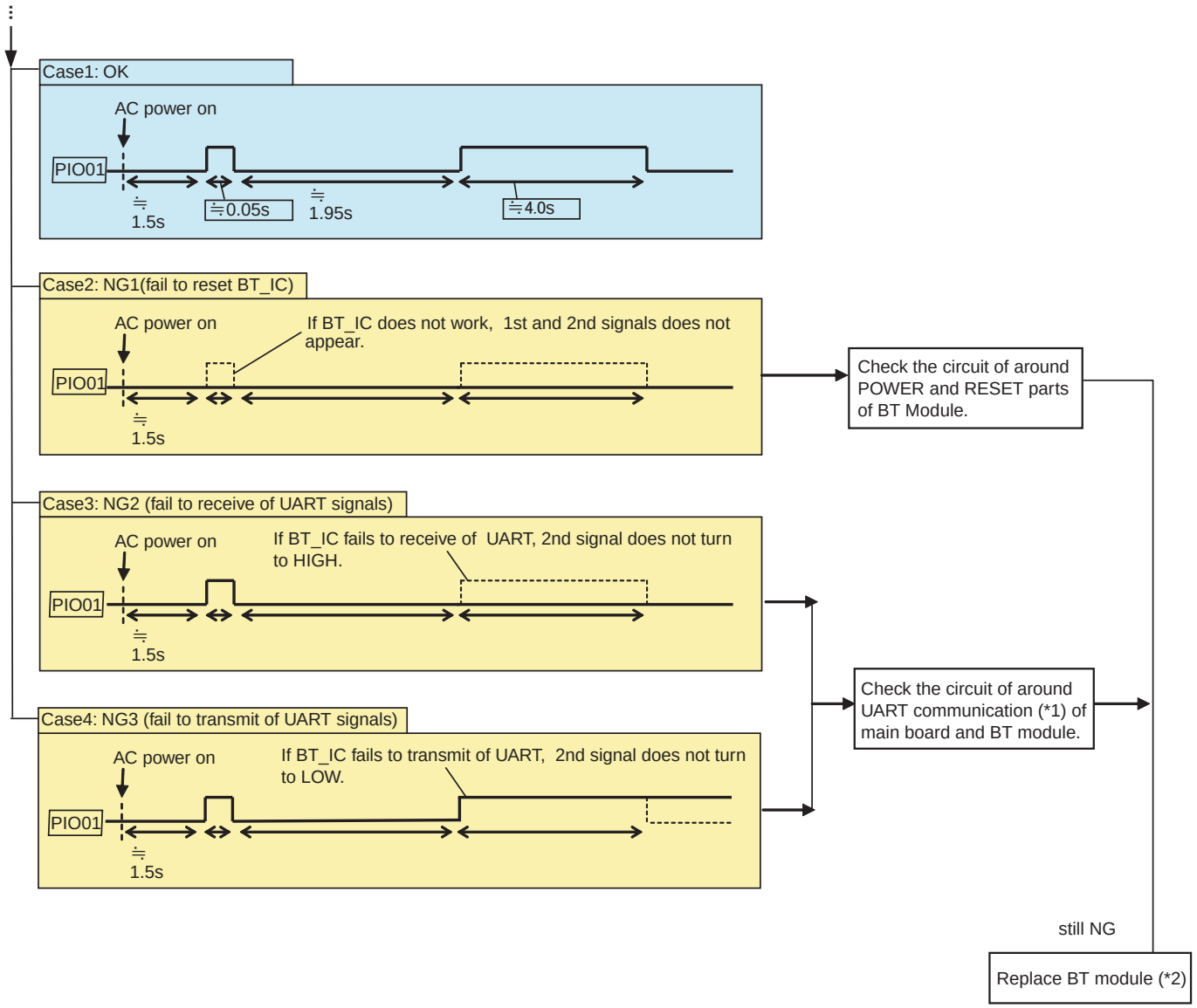
Cross Reference:
Telephone Line Interface (P.17)
Calling Line Identification (Caller ID)/Call Waiting Caller ID (P.19)

Note:
- Make sure the format of the Caller ID service of the Telephone company that the customer subscribes to.
- It is also recommended to confirm that the customer is really a subscriber of the service.

10.1.12. Check BT Communication



Cross Reference:
Bottom View (P.84)



Cross Reference:

Schematic Diagram (Base Unit_RF) (P.76)

Note:

(*2) After replacing, need to adjust the frequency of BT.

Refer to **Things to Do after Replacing IC or X'tal** (P.63)

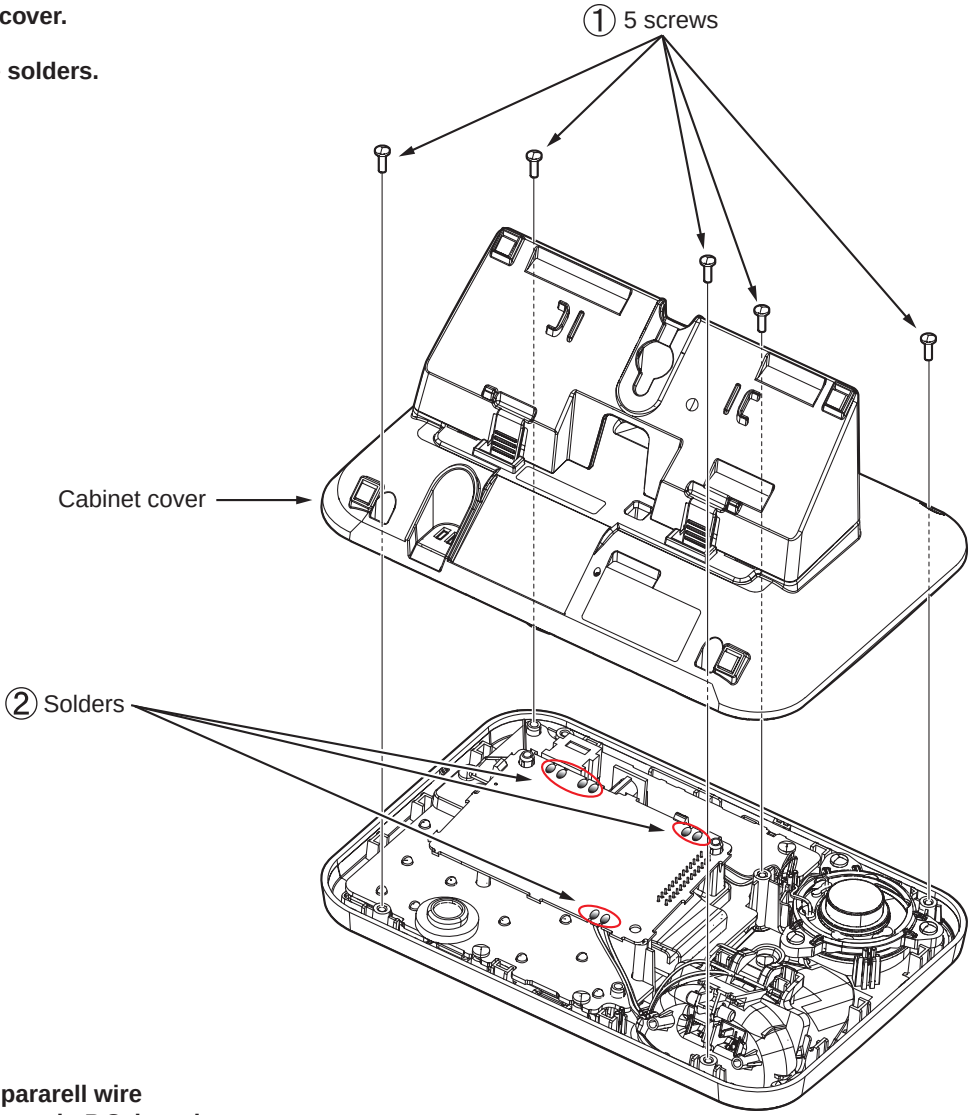
11 Disassembly and Assembly Instructions

11.1. Disassembly Instructions

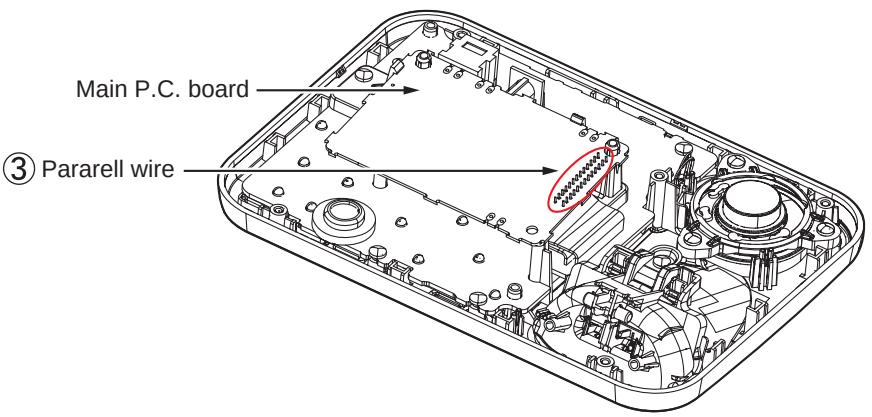
11.1.1. Base Unit

① **Remove the 5 screws to remove the cabinet cover.**

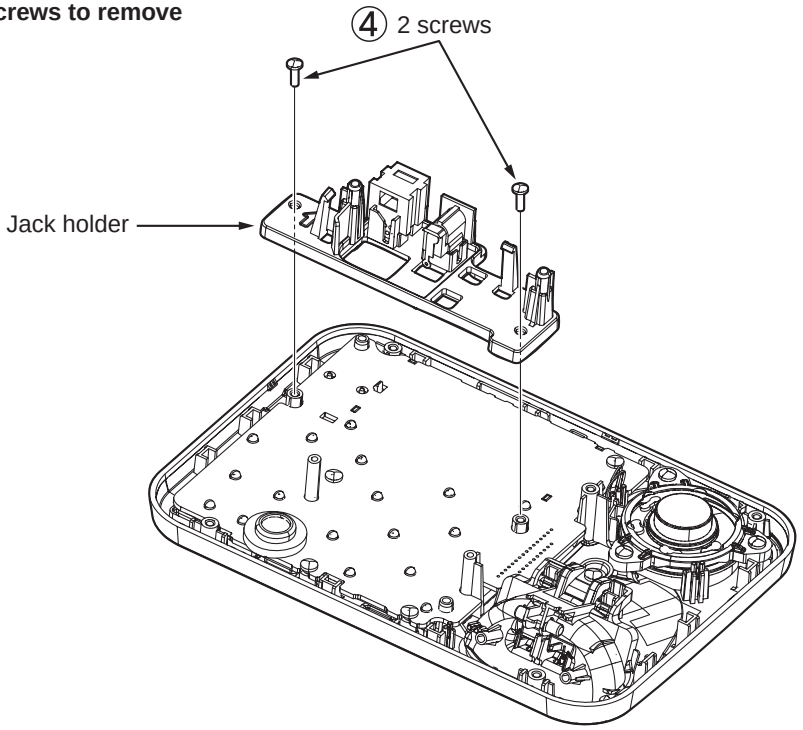
② **Remove the solders.**



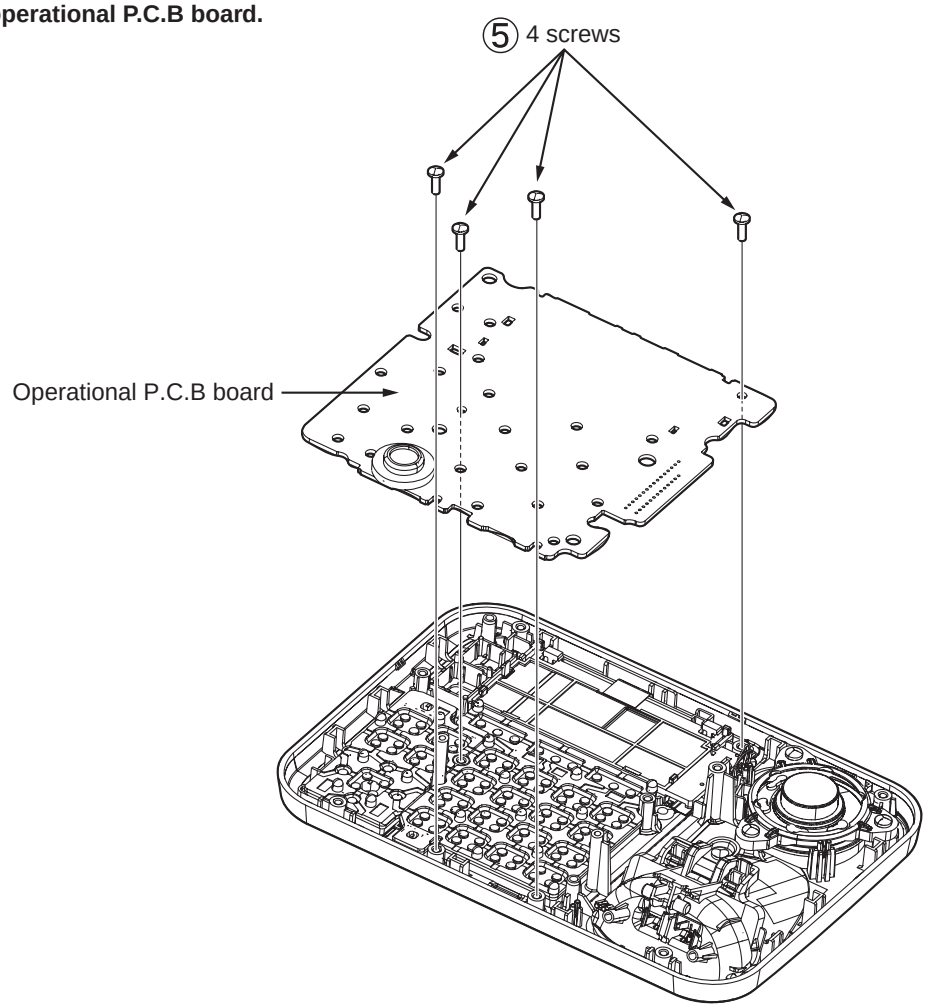
③ **Remove the pararell wire to remove the main P.C. board.**



④ **Remove the 2 screws to remove the Jack holder.**

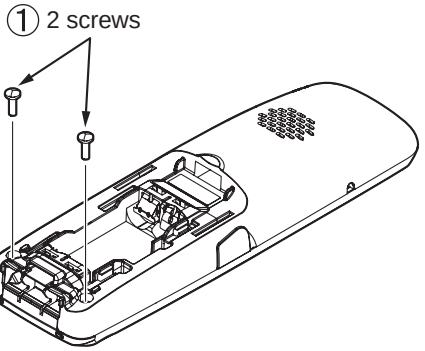


⑤ **Remove the 4 screws to remove the operational P.C.B board.**

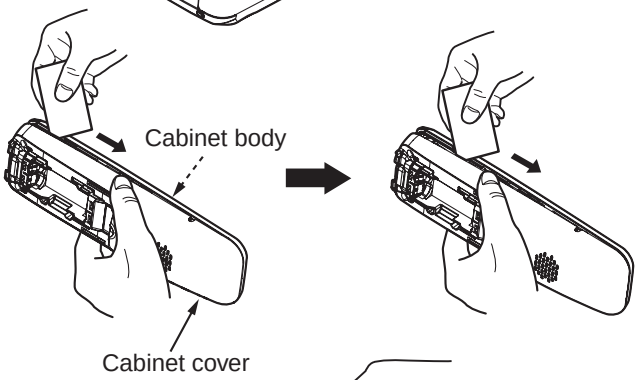


11.1.2. Handset

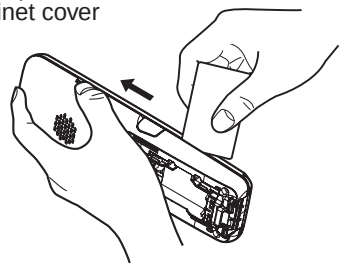
① **Remove the 2 screws.**



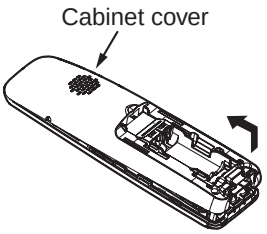
② **Insert a JIG (PQDJ10006Y) between the cabinet body and the cabinet cover, then pull it along the gap to open the cabinet.**



③ **Likewise, open the other side of the cabinet.**



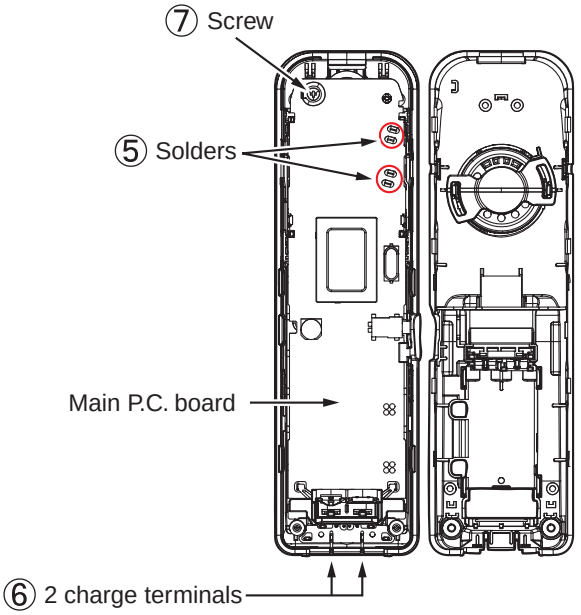
④ **Remove the cabinet cover by pushing it upward.**



⑤ **Remove the solders.**

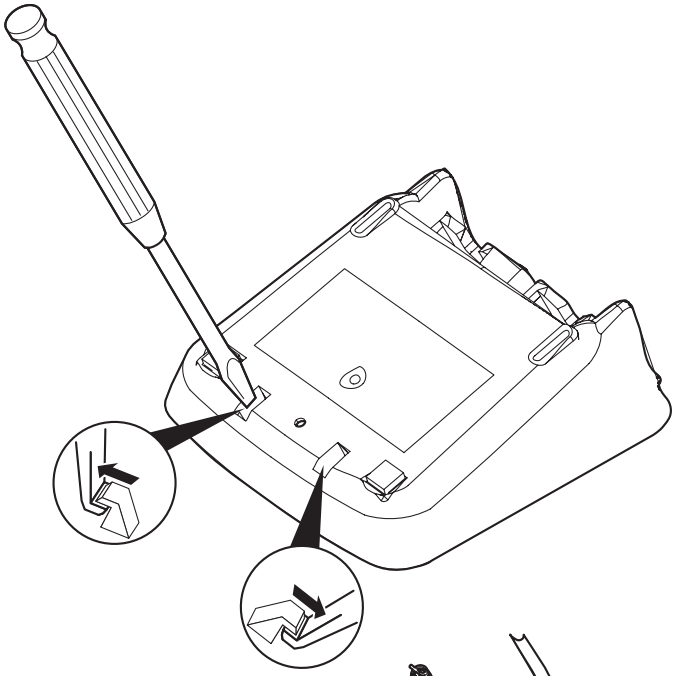
⑥ **Remove the solders to remove the 2 charge terminals.**

⑦ **Remove the screw to remove the main P. C. board.**

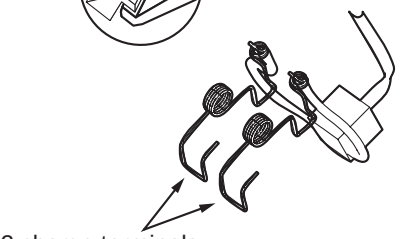


11.1.3. Charger Unit

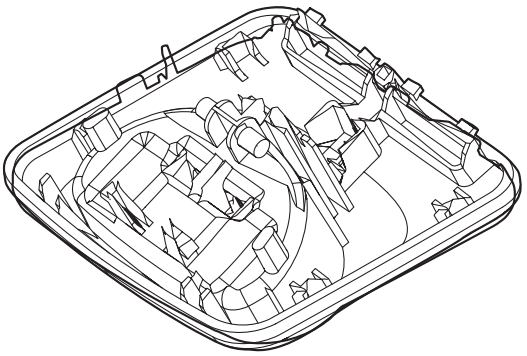
① **Unhook the click of one side.**



② **Then unhook the other one.**

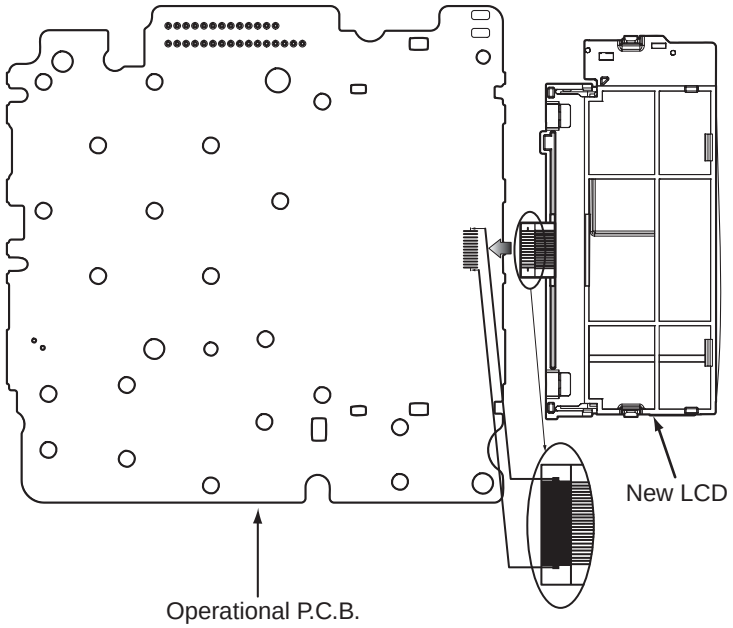


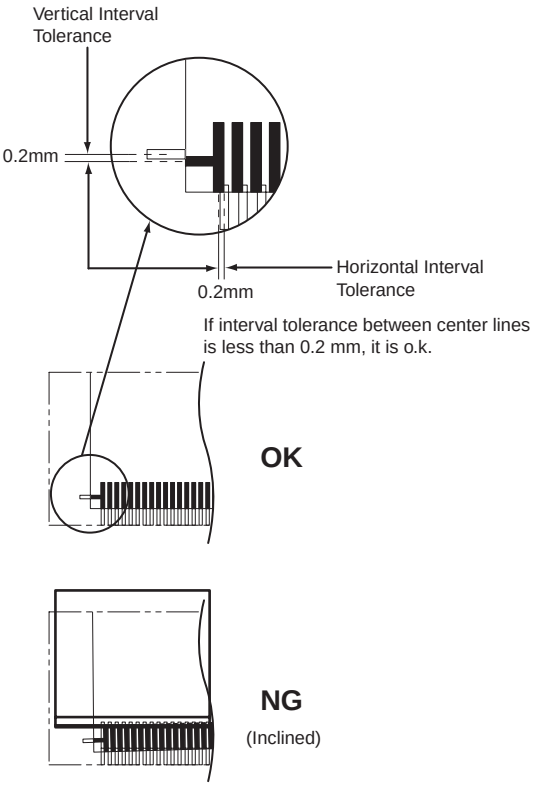
2 charge terminals



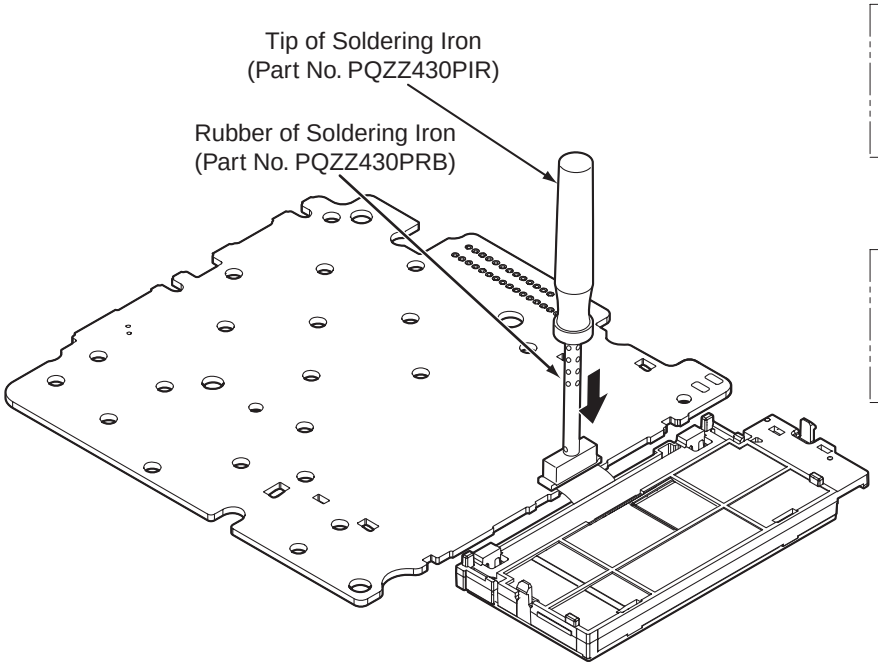
11.2. How to Replace the Base unit LCD

① Fit the heatseal of a new LCD.

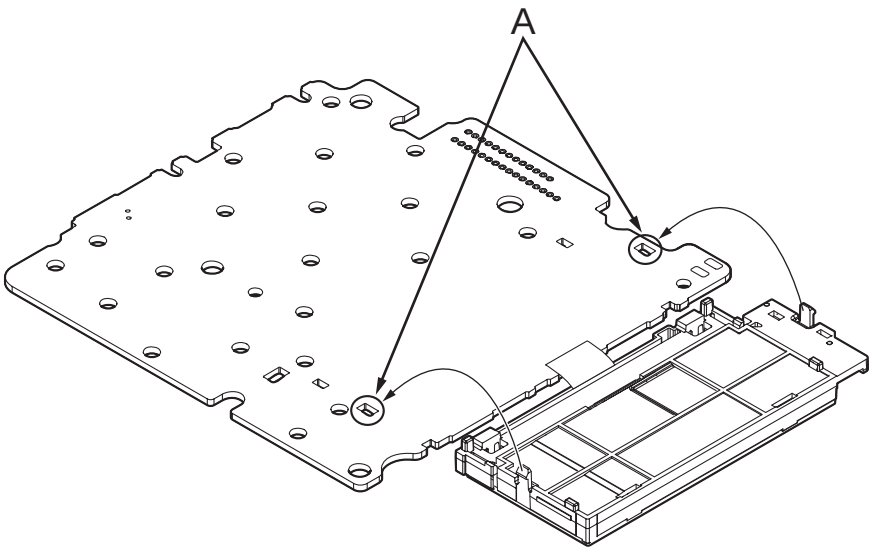




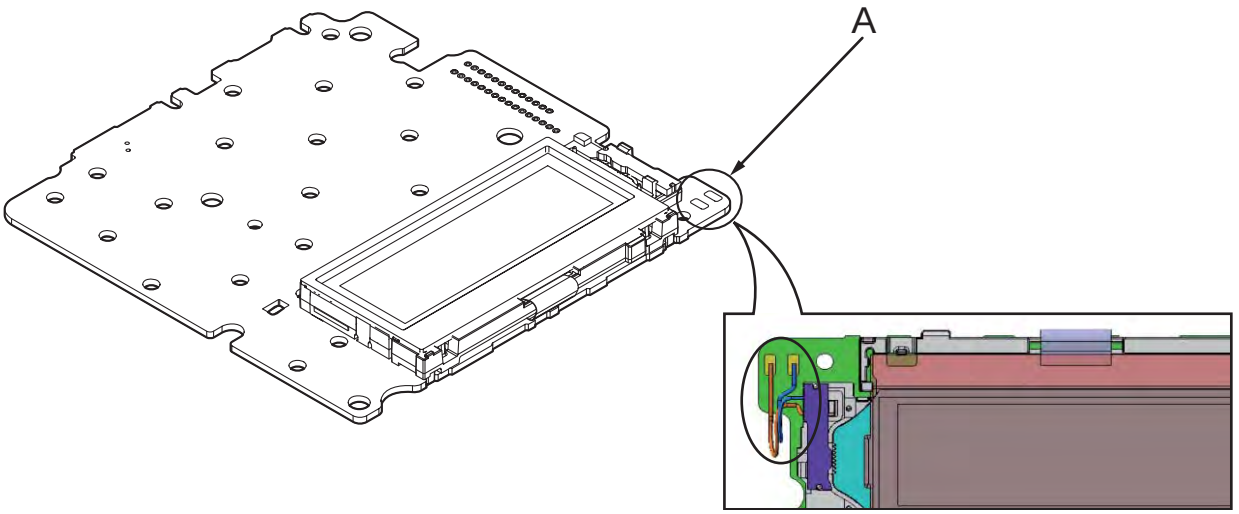
② Heatweld with the tip of the soldering iron about 5 to 8 seconds (in case of 60W soldering iron).



③ Attach the LCD and fix by hook A (two points).



④ Solder the wires.



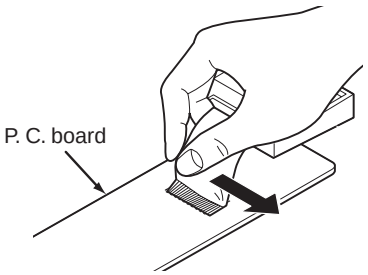
11.3. How to Replace the Handset LCD

Note:

The illustrations are simplified in this page.

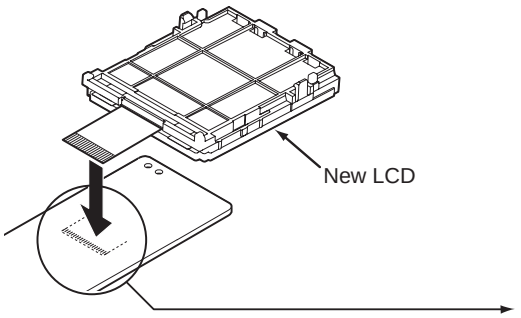
They may differ from the actual product.

①

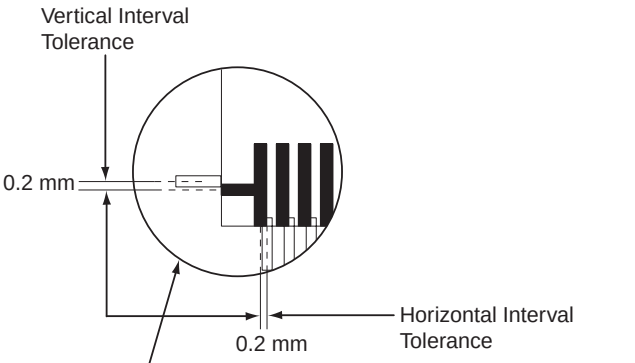


Peel off the FFC (Flexible Flat Cable) from the LCD, in the direction of the arrow. Take care to ensure that the foil on the P.C. board is not damaged.

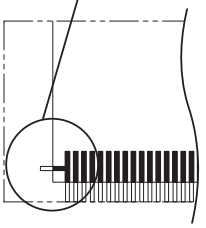
②



Fit the heatseal of a new LCD.

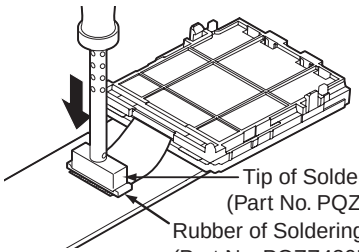


If interval tolerance between center lines is less than 0.2 mm, it is o.k.

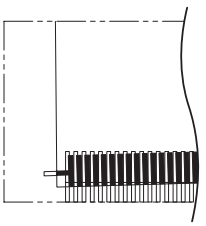


OK

③

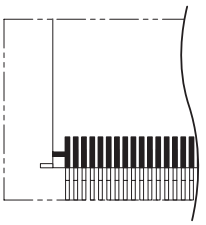


Heatweld with the tip of the soldering iron about 5 to 8 seconds (in case of 60W soldering iron).



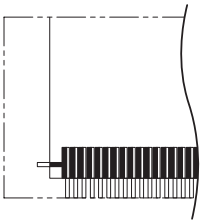
NG

(Inclined)



NG

(Vertical interval tolerance is more than 0.2 mm.)



NG

(Horizontal interval tolerance is more than 0.2 mm.)

12 Measurements and Adjustments

This chapter explains the measuring equipment, the JIG connection, and the PC setting method necessary for the measurement in **Troubleshooting Guide** (P.34)

12.1. Equipment Required

- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope.
- Frequency counter: It must be precise enough to measure intervals of 1 Hz (precision; ±4 ppm)
  Hewlett Packard, 53131A is recommended.
- DECT tester: Rohde & Schwarz, CMD 60 is recommended.
  This equipment may be useful in order to precisely adjust like a mass production.

12.2. The Setting Method of JIG

<Preparation>

- Serial JIG cable: PQZZ1CD300E*
- PC which runs in DOS mode
- **Batch file CD-ROM** for setting: PNZZTG7871M

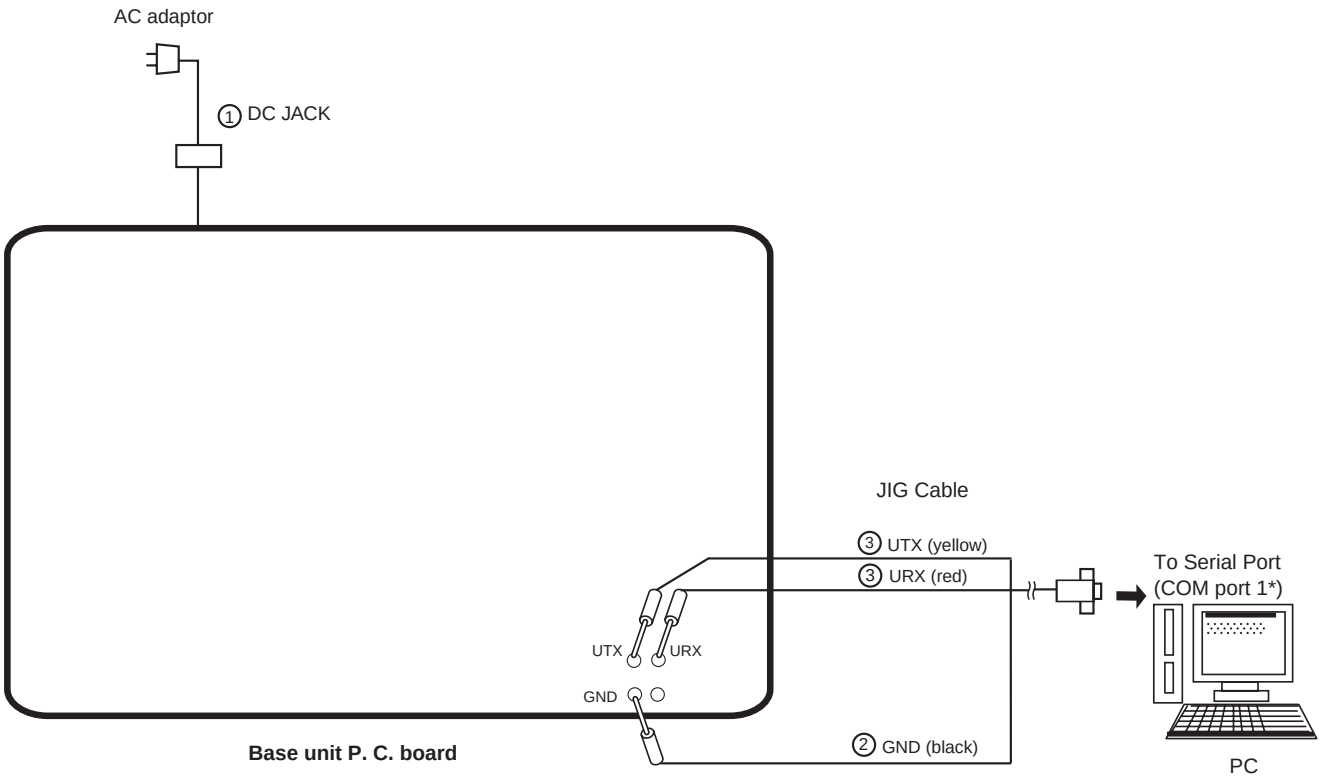
Note:

*: If you have the JIG Cable for TCD500 series (PQZZ1CD505E), change the following values of resistance. Then you can use it as a JIG Cable for both TCD300 and TCD500 series. (It is an upper compatible JIG Cable.)

Resistor	Old value (kΩ)	New value (kΩ)
R2	22	3.3
R3	22	3.3
R4	22	4.7
R7	4.7	10

12.2.1. Connections (Base Unit)

① Connect the AC adaptor.
② Connect the JIG Cable GND (black).
③ Connect the JIG Cable RX (red) and TX (yellow).



Note:

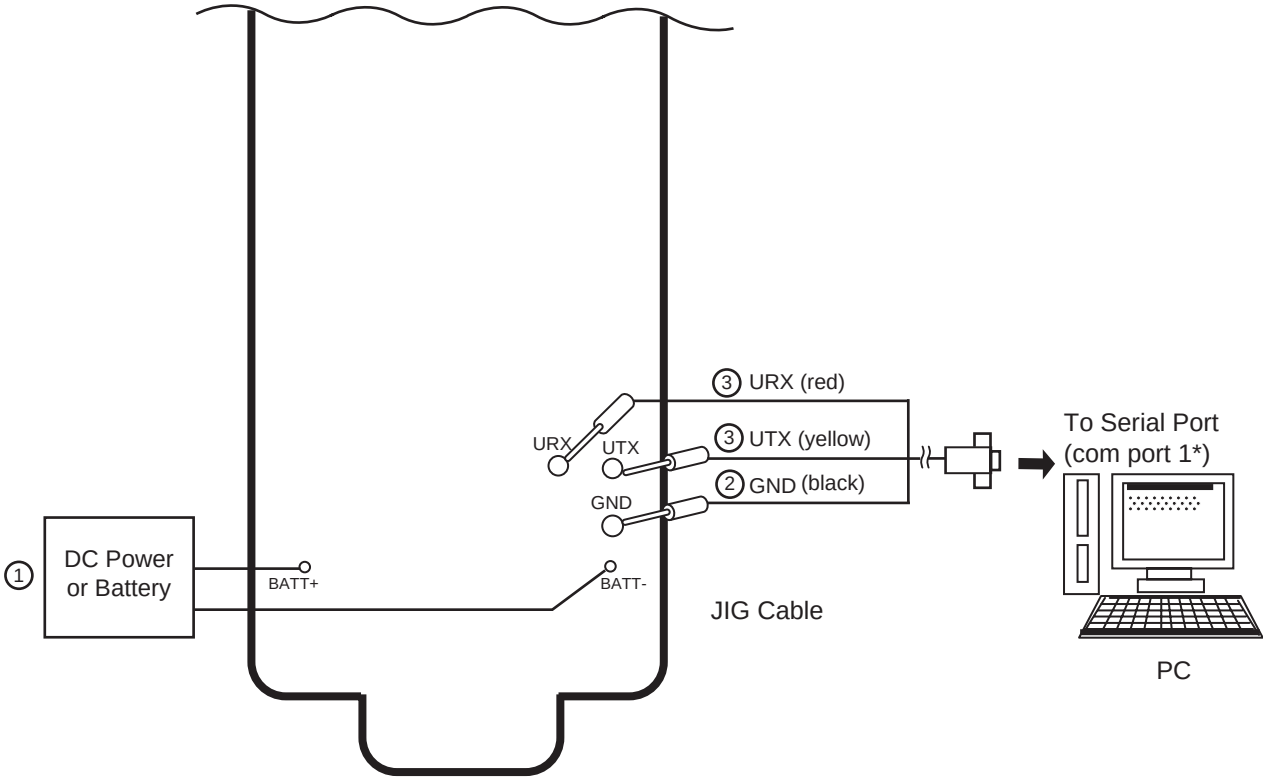
*: COM port names may vary depending on what your PC calls it.

12.2.2. Connections (Handset)

①Connect the DC Power or Battery to BATT+ and BATT-.

②Connect the JIG cable GND (black) to GND.

③Connect the JIG cable UTX (yellow) to UTX and URX (red) to URX.



Handset P. C. board

Note:

*: COM port names may vary depending on what your PC calls it.

12.2.3. How to install Batch file into P.C.

1. Insert the Batch file CD-ROM into CD-ROM drive and copy PNZZTG**** folder to your PC (example: D drive).

2. Open an MS-DOS mode window.

<Example for Windows>

On your computer, click **[Start]**, select **Programs** (**All Programs** for Windows XP/Windows Server 2003), then click
MS-DOS Prompt. (for Windows 95/Windows 98)
Or
Accessories-MS-DOS Prompt. (for Windows Me)
Or
Command Prompt. (for Windows NT 4.0)
Or
Accessories-Command Prompt.
(for Windows 2000/Windows XP/Windows Server 2003)

3. At the DOS prompt, type "**D:**" (for example) to select the drive, then press the **Enter** key.

4. Type "**CD ¥PNZZTG****"**, then press the **Enter** key.

5. Type "**SET_COM=X**", then press the **Enter** key
(**X**: COM port number used for the serial connection on your PC).

6. Type "**READID**", then press the **Enter** key.
- If any error messages appear, change the port number or check the cable connection.
- If any value appear, go to next step.

7. Type "**DOSKEY**", then press the **Enter** key.

<Example>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG****
D: ¥PNZZTG**** >SET_COM=X
D: ¥PNZZTG****>READID
00 52 4F A8 A8
D: ¥PNZZTG****>DOSKEY
D: ¥PNZZTG****>
```

<Example: error happens>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG****
D: ¥PNZZTG**** >SET_COM=X
D: ¥PNZZTG****>READID
   CreateFile error
ERROR 10: Can't open serial port
D: ¥PNZZTG ****>
```

Note:
- "*****" varies depending on the country or models.

12.2.4. Commands

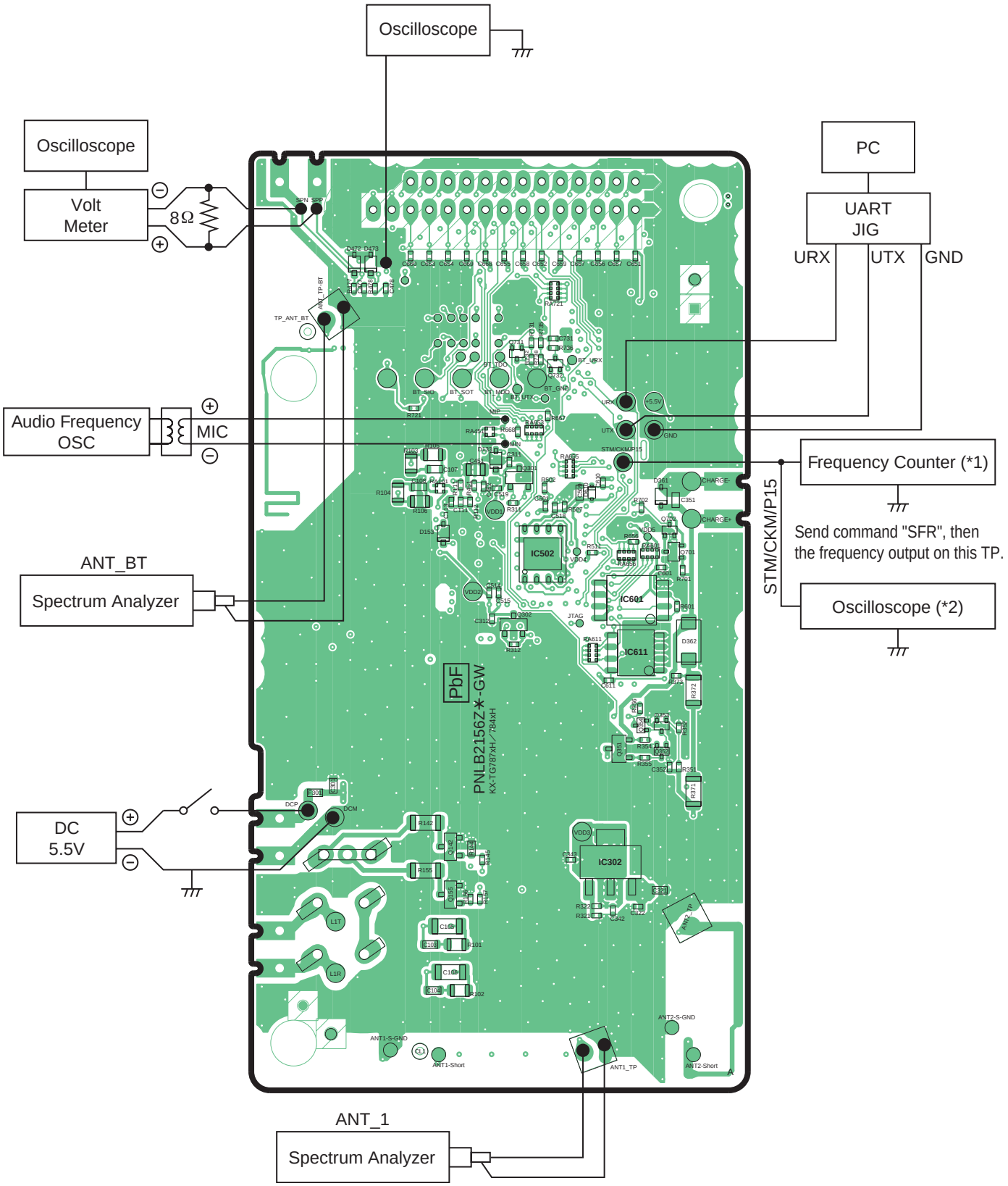
See the table below for frequently used commands.

Command name		Function	Example
rdeeprom		Read the data of EEPROM	Type “rdeeprom 00 00 FF”, and the data from address “00 00” to “FF” is read out.
readid		Read ID (RFPI)	Type “readid”, and the registered ID is read out.
writeid		Write ID (RFPI)	Type “writeid 00 18 E0 0E 98”, and the ID “0018 E0 0E 98” is written.
hookoff		Off-hook mode on Base	Type “hookoff”.
hookon		On-hook mode on Base	Type “hookon”.
getchk (Base unit)		Read checksum	Type “getchk”.
How to use of "getchk" in Handset	1.rdeeprom	Read EEPROM	Type “RdEeprom 03 7D 04”, and the data from address "03 7D" to "03 80" is read out *This command gets 4 byte "WW", "XX", "YY", "ZZ". *Please NEVER forget these 4 byte data!
	2.sendchar epw	Write EEPROM	Type “sendchar epw 03 7D 04 FF FF FF FF”
	3.sendchar RST	Reset baseset	Type “sendchar RST”
	4.getchk	Read checksum	Type “getchk”.
	5.sendchar epw	Write EEPROM	Type “sendchar epw 03 7D 04 WW XX YY ZZ” *"WW", "XX", "YY", "ZZ" is 4 byte data that already read from same address.
wreeprom		Write the data of EEPROM	Type “wreeprom 01 23 45”. “01 23” is address and “45” is data to be written.

12.3. Adjustment Standard (Base Unit)

When connecting the simulator equipment for checking, please refer to below.

12.3.1. Bottom View



Note:

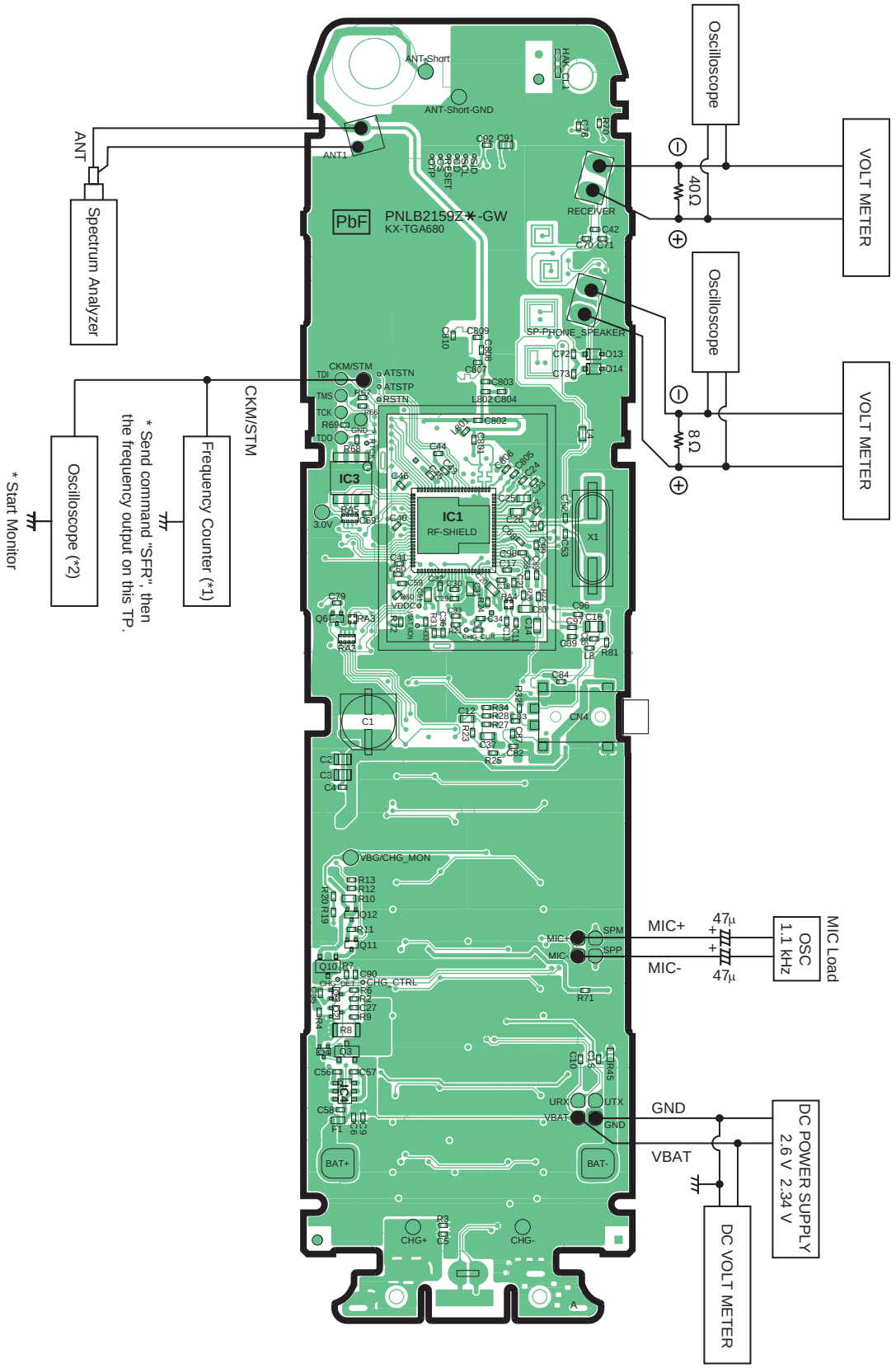
(*1) refers to No.2 of Check **Check Table for RF part** (P.44)

(*2) refers to **Power Supply Circuit/Reset Circuit** (P.15)

12.4. Adjustment Standard (Handset)

When connecting the simulator equipment for checking, please refer to below.

12.4.1. Component View



Note:

(*1) refers to No.2 of Check **Check Table for RF part** (P.44)

(*2) refers to **Power Supply Circuit/Reset Circuit** (P.23)

12.5. Things to Do after Replacing IC or X'tal

If repairing or replacing EEPROM and X'tal, it is necessary to download the required data such as Programming data or adjustment data, etc. in memory.
The set doesn't operate if it is not executed.

12.5.1. How to download the data

12.5.1.1. Base Unit

First, operate the PC setting according to **The Setting Method of JIG** (P.57).
Then download the appropriate data according to the following procedures.

KX-TG7841/KX-TG7842/KX-TG7843/KX-TG7844/KX-TG7845/KX-TG365SK

Items		How to download/Required adjustment
BBIC(IC501)	Programming data is stored in memory.	1) Clock adjustment: Refer to Check Point (H).(*2)
EEPROM (IC611)	Adjusted parameter data is stored in memory. (country version batch file, default batch file, etc.)	1) Change the address “0001” of EEPROM to “AA” to download the data. 2) Default batch file: Execute the command “default.bat”. 3) Country version batch file: Execute the command “TG7841US_US_RevXXX_YYY.bat”. (*1) 4) Clock adjustment
FLASH1 (IC601)	Voice prompt data is stored in memory. (vary depending on country version)	1) Wait more than 15 seconds after connecting the JIG Cable. 2) Execute the command “VPDL2011 -AA ZZZ.bin” (*1). (writing time: approx. 1 min (115200 bps).)
FLASH2 (IC502)	Program D/L	1) Make sure to connect the JIG cable and disconnect the DC Power in order to download the data. 2) Execute the command “flw441 *********.hex”. 3) Connect the DC Power. 4) Press the PC Enter key once. 5) After a few minutes, “Successful upgrade” is displayed on the PC indicating downloading has finished. 6) Detach the JIG cable, then disconnect the DC Power. 7) Connect the DC Power. 8) Connect the JIG cable again, and execute the command “getchk”, then confirm the checksum value is correct. . If the downloading fails, start again from step 1. 9) Default batch file: Execute the command “default.bat”. 10) Country version batch file: Execute the command “TG7841US_US_RevXXX_YYY.bat”. (*1) 11) Clock adjustment: Refer to Check Point (H). (*2)
X'tal (X1)	System clock	Clock adjustment data is in EEPROM, adjust the data again after replacing it. 1) Apply 5.5V between DCP ad DCM with DC power. 2) Input Command "sendchar sfr", then you can confirm the current value. 3) Check X'tal Frequency.(10.368MHz ± 41Hz). 4) If the frequency is not 10.368MHz ±41Hz, adjust the frequency of CLK executing the command "sendchar sfr xx xx (where xx is the value)" so that the reading of the frequency counter is 10.368MHz ±5Hz.

KX-TG7871/KX-TG7872/KX-TG7873/KX-TG7874/KX-TG7875/KX-TG385SK

Items		How to download/Required adjustment
BBIC(IC501)	Programming data is stored in memory.	1) Clock adjustment: Refer to Check Point (H).(*2)
EEPROM (IC611)	Adjusted parameter data is stored in memory. (country version batch file, default batch file, etc.)	1) Change the address “0001” of EEPROM to “AA” to download the data. 2) Default batch file: Execute the command “default.bat”. 3) Country version batch file: Execute the command “TG7871US_US_RevXXX_YYY.bat”. (*1) 4) Clock adjustment
FLASH1 (IC601)	Voice prompt data is stored in memory. (vary depending on country version)	1) Wait more than 15 seconds after connecting the JIG Cable. 2) Execute the command “VPDL2011 -AA ZZZ.bin” (*1). (writing time: approx. 1 min (115200 bps).)
FLASH2 (IC502)	Program D/L	1) Make sure to connect the JIG cable and disconnect the DC Power in order to download the data. 2) Execute the command “flw441 *********.hex”. 3) Connect the DC Power. 4) Press the PC Enter key once. 5) After a few minutes, “Successful upgrade” is displayed on the PC indicating downloading has finished. 6) Detach the JIG cable, then disconnect the DC Power. 7) Connect the DC Power. 8) Connect the JIG cable again, and execute the command “getchk”, then confirm the checksum value is correct. . If the downloading fails, start again from step 1. 9) Default batch file: Execute the command “default.bat”. 10) Country version batch file: Execute the command “TG7871US_US_RevXXX_YYY.bat”. (*1) 11) Clock adjustment: Refer to Check Point (H). (*2)
X'tal (X1)	System clock	Clock adjustment data is in EEPROM, adjust the data again after replacing it. 1) Apply 5.5V between DCP ad DCM with DC power. 2) Input Command "sendchar sfr", then you can confirm the current value. 3) Check X'tal Frequency.(10.368MHz ± 41Hz). 4) If the frequency is not 10.368MHz ±41Hz, adjust the frequency of CLK executing the command "sendchar sfr xx xx (where xx is the value)" so that the reading of the frequency counter is 10.368MHz ±5Hz.

Note:

(*1) XXX_YYY: revision number, ZZZ:Voice prompt, AA: Baud rate(9600/19200/57600/115200)

"XXX_YYY and "ZZZ" vary depending on the country version. You can find them in the batch file, PNZZ- mentioned in **The Setting Method of JIG** (P.57).

When adjust the frequency the BT Unit.

	Item	Test command		Description
		Input	Echo back	
1	Power on	-	-	Wait 10seconds and connect JIG
2	Test mode	sendchar XBT 1 ↵ sendchar #X ts ↵	OK #XXTEST	Enter"XBT 1" and then "OK" is back when it succeeds to enter test mode.
3	Confirm a default value	sendchar #X nc ↵	#XXnc=0x1A	Confirm a default value before adjusting the frequency.
4	Adjust the frequency	sendchar #X b3 39 19 ↵ sendchar nc,, ↵	#XXTS ch=2441 pwr=19 #XXnc=0x,,	Adjust the frequency to "2441MHz ± 10kHz" by changing the value of, Test Point: ANT_BT, refer to **Bottom View** (P.84)

Note:

↵: Enter key

12.5.1.2. Handset

First, operate the PC setting according to **The Setting Method of JIG** (P.57).
Then download the appropriate data according to the following procedures.

Items		How to download/Required adjustment
EEPROM (IC3)	Adjusted parameter data is stored in memory. (country version batch file, default batch file, etc.)	1) Default batch file: Execute the command “default.bat”. 2) Default batch file (remaining): Execute the command “TGA680US_DEF_RevXXX_YYY.bat”. (*2) 3) Country version batch file: Execute the command “TGA680US_US_RevXXX_YYY.bat”. (*2) 4) Clock adjustment 5) 2.35 V setting and battery low detection
X'tal (X1)	System clock	1) Apply 2.6V between BATT+ and BATT- with DC power. 2) Input Command " sendchar sfr", then you can confirm the current value. 3) Check X'tal Frequency.(13.824 MHz ± 100 Hz). 4) If the frequency is not 13.824 MHz ± 100 Hz, adjust the frequency of CLK executing the command "sendchar sfr xx xx (where xx is the value)" so that the reading of the frequency counter is 13.824000 MHz ± 5 Hz.

Note:

(*2) XXX_YYY: revision number

"XXX_YYY" vary depending on the country version. You can find them in the batch file, PNZZ- mentioned in **The Setting Method of JIG** (P.57).

12.6. Frequency Table

	Ch. (hex)	TX/RX Frequency (MHz)
Channel 0	00	1928.448
Channel 1	01	1926.720
Channel 2	02	1924.992
Channel 3	03	1923.264
Channel 4	04	1921.536

12.7. Bluetooth Frequency Table

Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
0	2402	33	2435	66	2468
1	2403	34	2436	67	2469
2	2404	35	2437	68	2470
3	2405	36	2438	69	2471
4	2406	37	2439	70	2472
5	2407	38	2440	71	2473
6	2408	39	2441	72	2474
7	2409	40	2442	73	2475
8	2410	41	2443	74	2476
9	2411	42	2444	75	2477
10	2412	43	2445	76	2478
11	2413	44	2446	77	2479
12	2414	45	2447	78	2480
13	2415	46	2448		
14	2416	47	2449		
15	2417	48	2450		
16	2418	49	2451		
17	2419	50	2452		
18	2420	51	2453		
19	2421	52	2454		
20	2422	53	2455		
21	2423	54	2456		
22	2424	55	2457		
23	2425	56	2458		
24	2426	57	2459		
25	2427	58	2460		
26	2428	59	2461		
27	2429	60	2462		
28	2430	61	2463		
29	2431	62	2464		
30	2432	63	2465		
31	2433	64	2466		
32	2434	65	2467		

13 Miscellaneous

13.1. How to Replace the LLP (Leadless Leadframe Package) IC

Note:

This description only applies to the model with Shield case.

13.1.1. Preparation

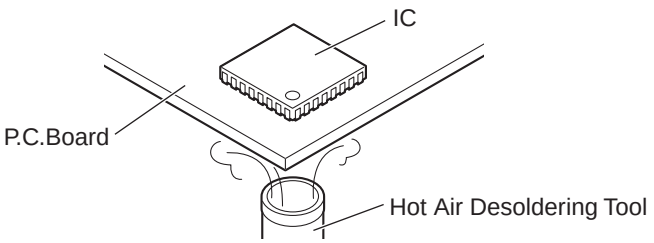
- PbF (: Pb free) Solder
- Soldering Iron
  Tip Temperature of 700 °F ± 20 °F (370 °C ± 10 °C)
  Note:
  We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Hot Air Desoldering Tool
  Temperature: 608 °F ± 68 °F (320 °C ± 20 °C)

13.1.2. Caution

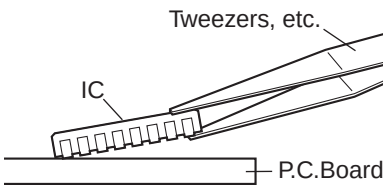
- To replace the IC efficiently, choose the right sized nozzle of the hot air desoldering tool that matches the IC package.
- Be careful about the temperature of the hot air desoldering tool not to damage the PCB and/or IC.

13.1.3. How to Remove the IC

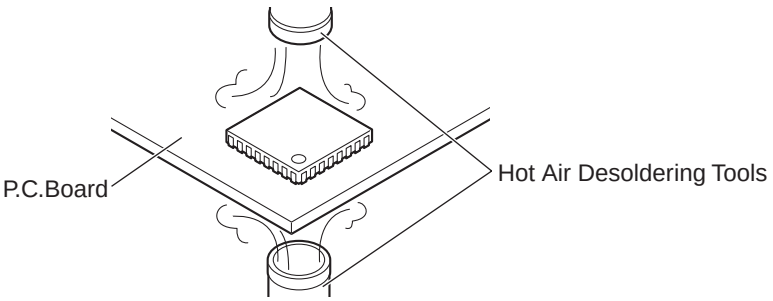
1. Heat the IC with a hot air desoldering tool through the P.C.Board.



2. Pick up the IC with tweezers, etc. when the solder is melted completely.
   Note:
   - Be careful not to touch the peripheral parts with tweezers, etc. They are unstable.



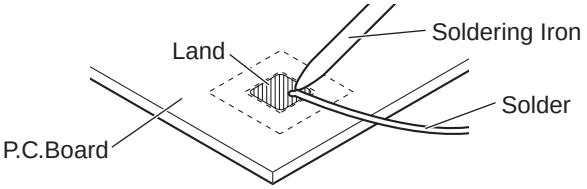
When it is hard to melt the solder completely, heat it with a hot air desoldering tool through the IC besides through the P.C.Board.



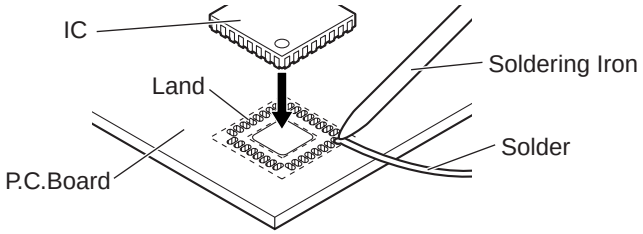
3. After removing the IC, clean the P.C.Board of residual solder.

13.1.4. How to Install the IC

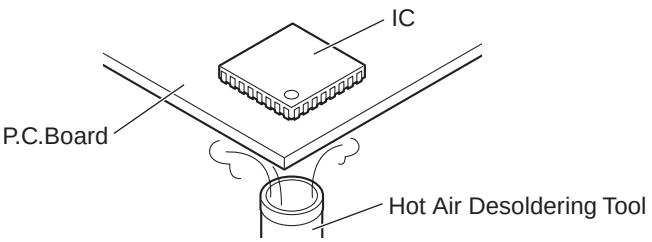
1. Place the solder a little on the land where the radiation GND pad on IC bottom is to be attached.



2. Place the solder a little on the land where IC pins are to be attached, then place the IC.
   Note:
   • When placing the IC, the positioning should be done very carefully.



3. Heat the IC with a hot air desoldering tool through the P.C.Board until the solder on IC bottom is melted.
   Note:
   • Be sure to place it precisely, controlling the air volume of the hot air desoldering tool.



4. After soldering, confirm there are no short and open circuits with visual inspection.

13.2. How to Replace the Flat Package IC

Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.

13.2.1. Preparation

- PbF (: Pb free) Solder
- Soldering Iron

  Tip Temperature of 700 °F ± 20 °F (370 °C ± 10 °C)

  Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Flux

  Recommended Flux: Specific Gravity → 0.82.

  Type → RMA (lower residue, non-cleaning type)

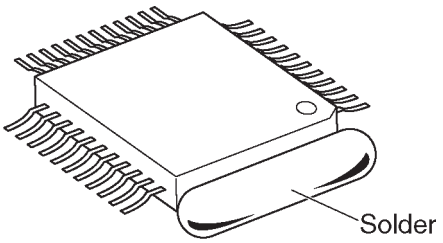
  Note: See **About Lead Free Solder (PbF: Pb free)** (P.5)

13.2.2. How to Remove the IC

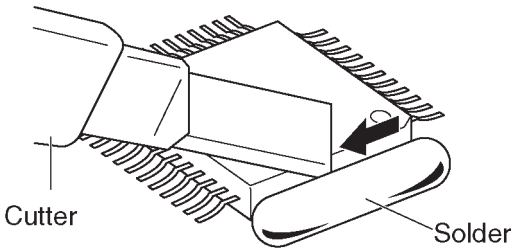
1. Put plenty of solder on the IC pins so that the pins can be completely covered.

   Note:

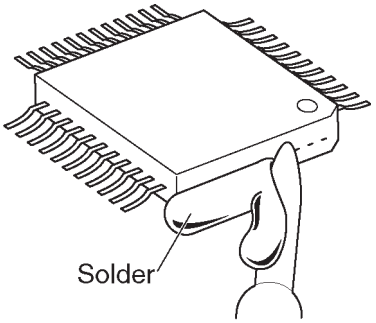
   If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



2. Make a few cuts into the joint (between the IC and its pins) first and then cut off the pins thoroughly.



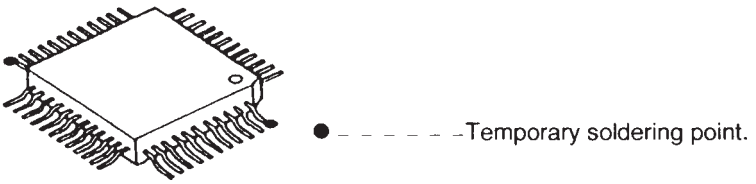
3. While the solder melts, remove it together with the IC pins.



When you attach a new IC to the board, remove all solder left on the board with some tools like a soldering wire. If some solder is left at the joint on the board, the new IC will not be attached properly.

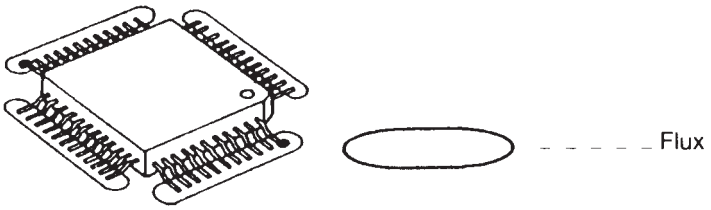
13.2.3. How to Install the IC

1. Temporarily fix the FLAT PACKAGE IC, soldering the two marked pins.

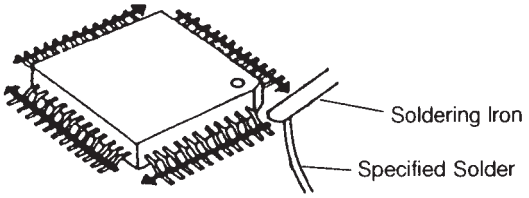


*Check the accuracy of the IC setting with the corresponding soldering foil.

2. Apply flux to all pins of the FLAT PACKAGE IC.

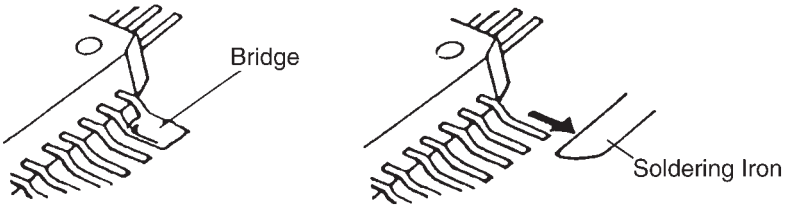


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



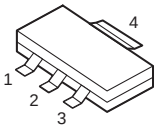
13.2.4. How to Remove a Solder Bridge

1. Lightly resolder the bridged portion.
2. Remove the remaining solder along the pins using a soldering iron as shown in the figure below.



13.3. Terminal Guide of the ICs, Transistors and Diodes

13.3.1. Base Unit



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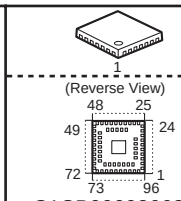
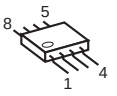
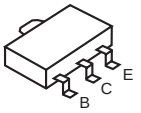


C1CB00003663

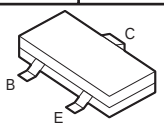


PNWI1TG7841H (*1)
PNWI1TG7871H (*2)
PNWI2TG7871H
PNWI3TG7871H

B1ACGP000008



DSC7003S0L



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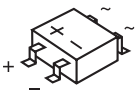
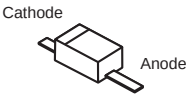
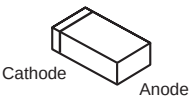
B1ADNB000003, 2SC6054JSL
B1ADCF000040, B1GBCFGA0021
2SA1576S, B1GBCFYY0020



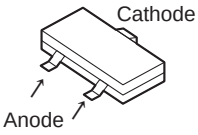
B0EDER000009



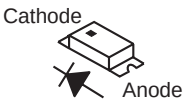
DA2J10100L
DY2J25000L
B0JCDD000001



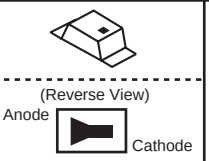
B0ECKM000008
B0BC4R3A0006



B0DDCD000001



B3AAB0000347



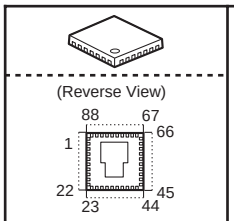
B3ABB0000331

Note:

(*1) KX-TG7841/KX-TG7842/KX-TG7843/KX-TG7844/KX-TG7845/KX-TG365SK

(*2) KX-TG7871/KX-TG7872/KX-TG7873/KX-TG7874/KX-TG7875/KX-TG385SK

13.3.2. Handset



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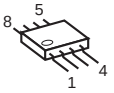
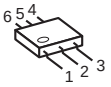


PNWITGA680R



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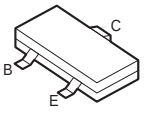

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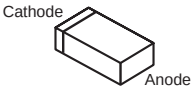
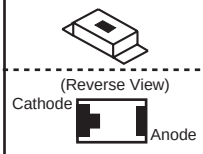
2SC6054JSL
B1ADNB000003

B1ABGE000011



B0BC4R3A0006



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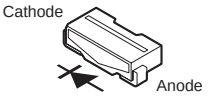


B3AFB0000561

14 Schematic Diagram

14.1. For Schematic Diagram

14.1.1. Base Unit (Schematic Diagram (Base Unit_Main))

Notes:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.

> Important Safety Notice:
> Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacture's specified parts.

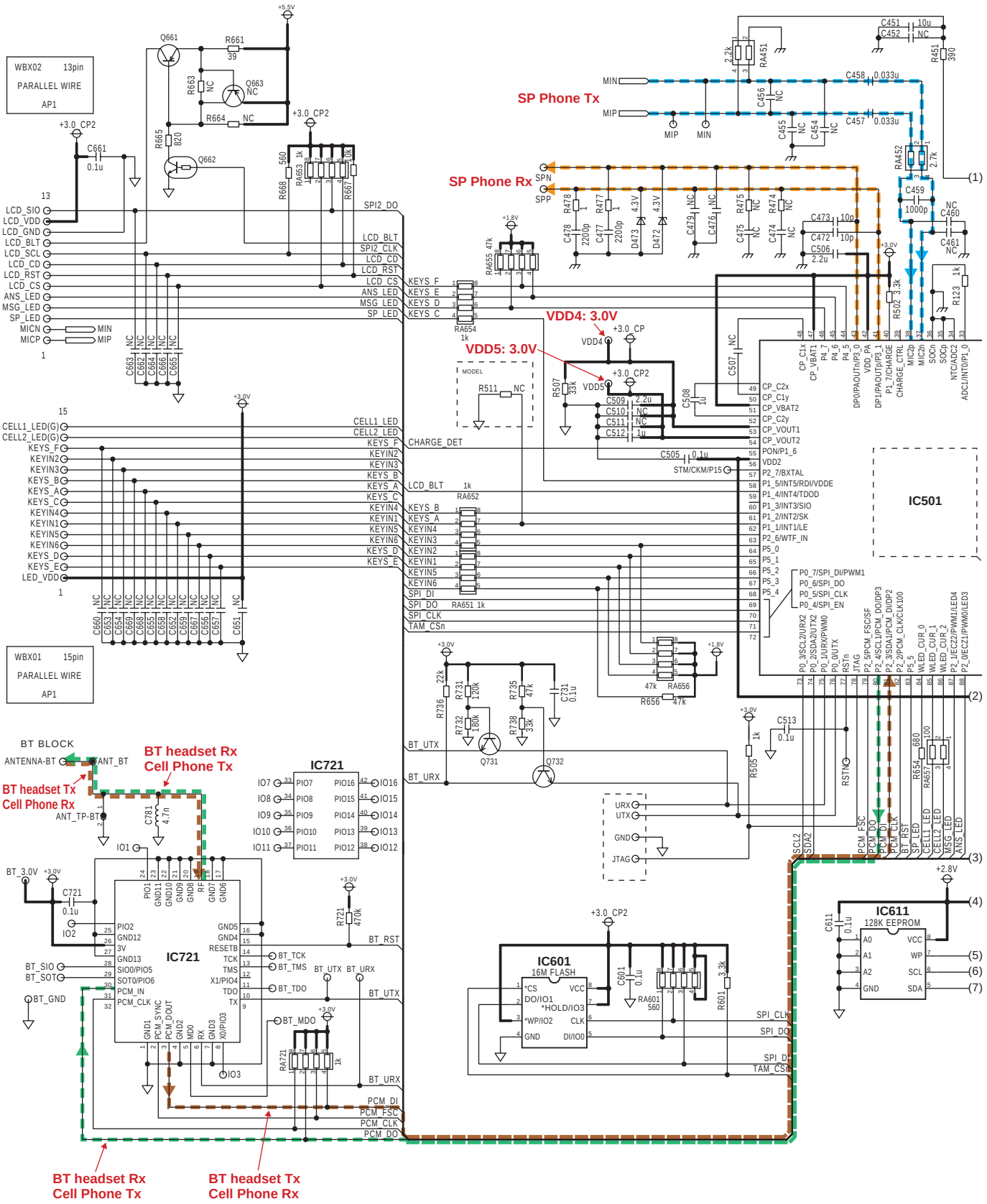
2. The schematic diagrams may be modified at any time with the development of new technology.

14.1.2. Handset (Schematic Diagram (Handset_Main))

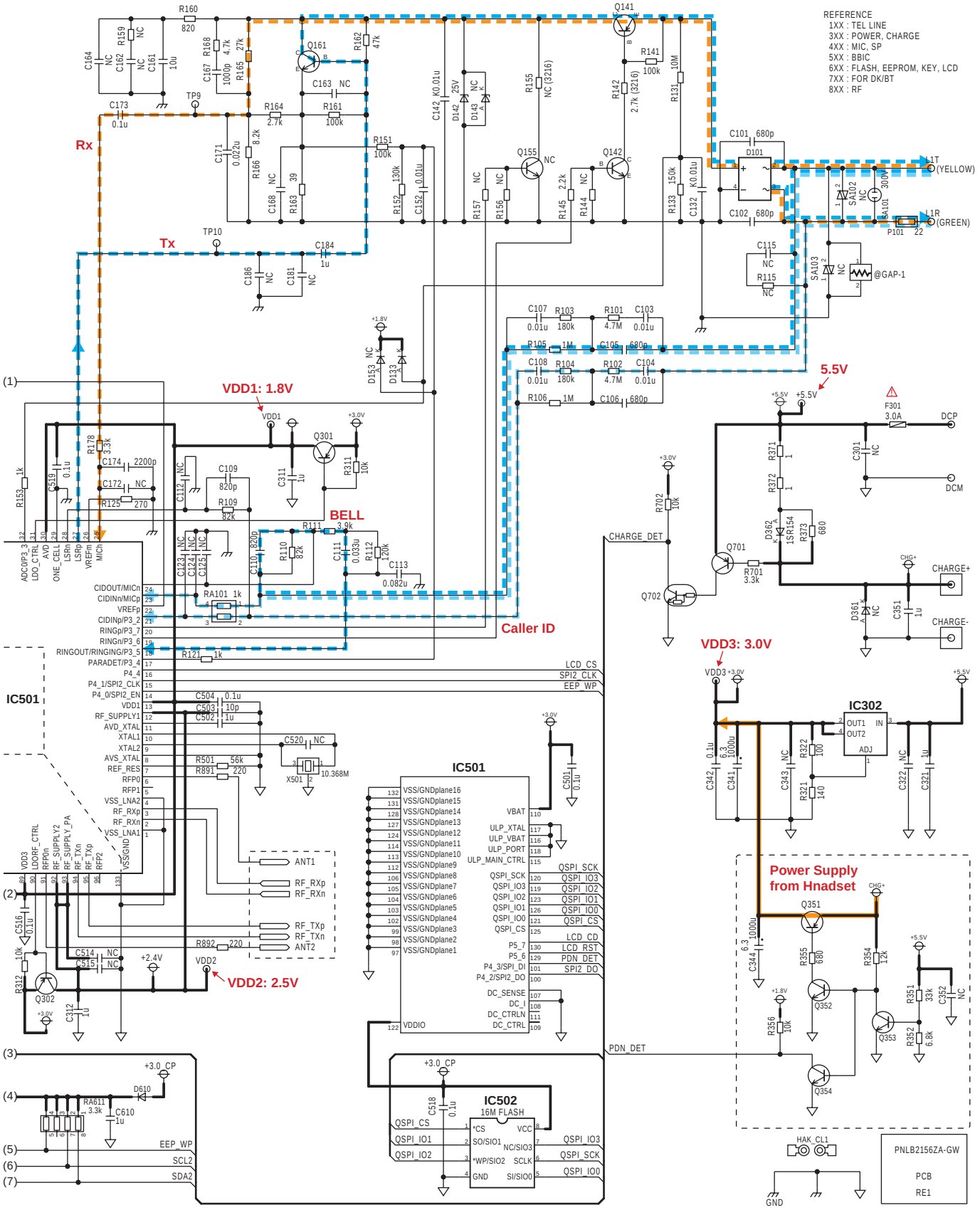
Notes:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams may be modified at any time with the development of new technology.

14.2. Schematic Diagram (Base Unit_Main)



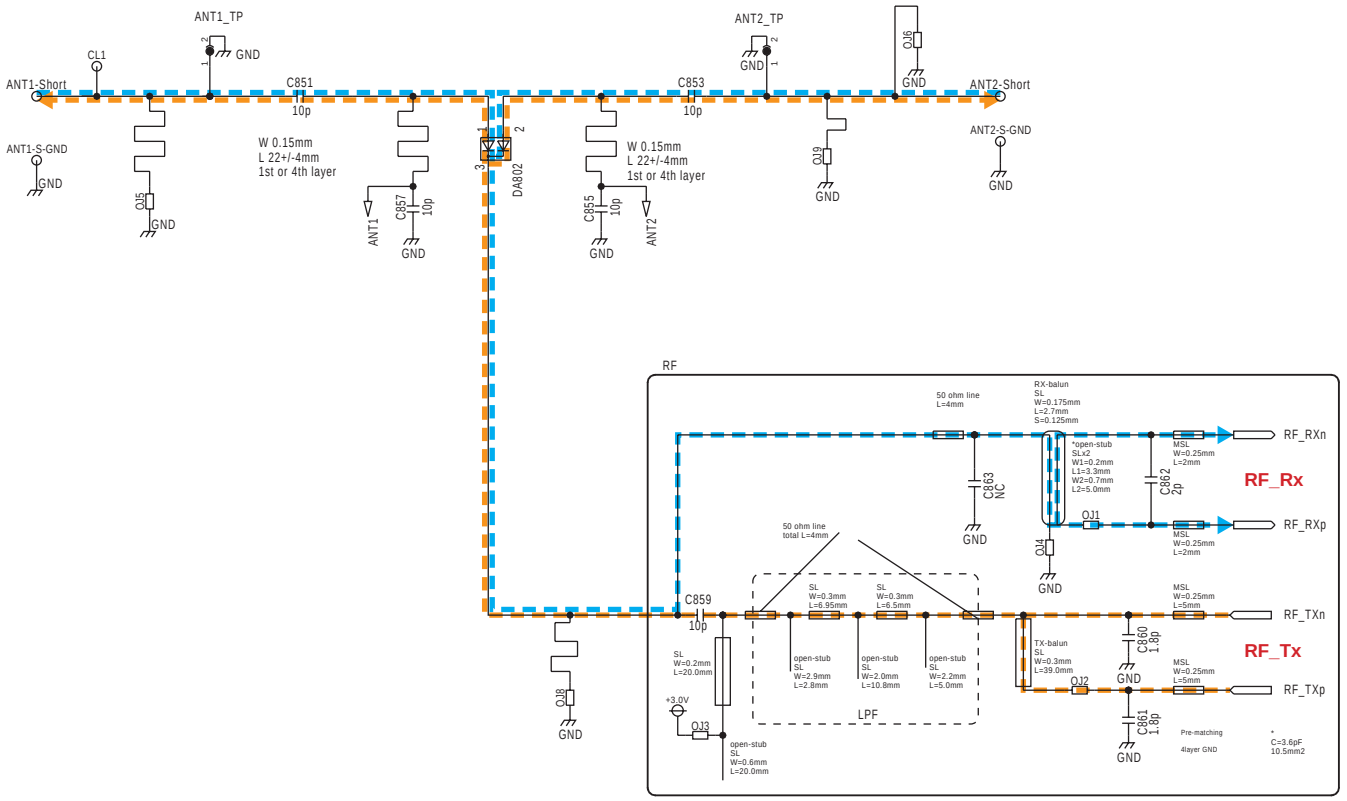
NC: No Components

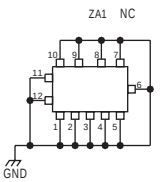


NC: No Components

KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385 SCHEMATIC DIAGRAM (Base Unit_Main)

14.3. Schematic Diagram (Base Unit_RF)

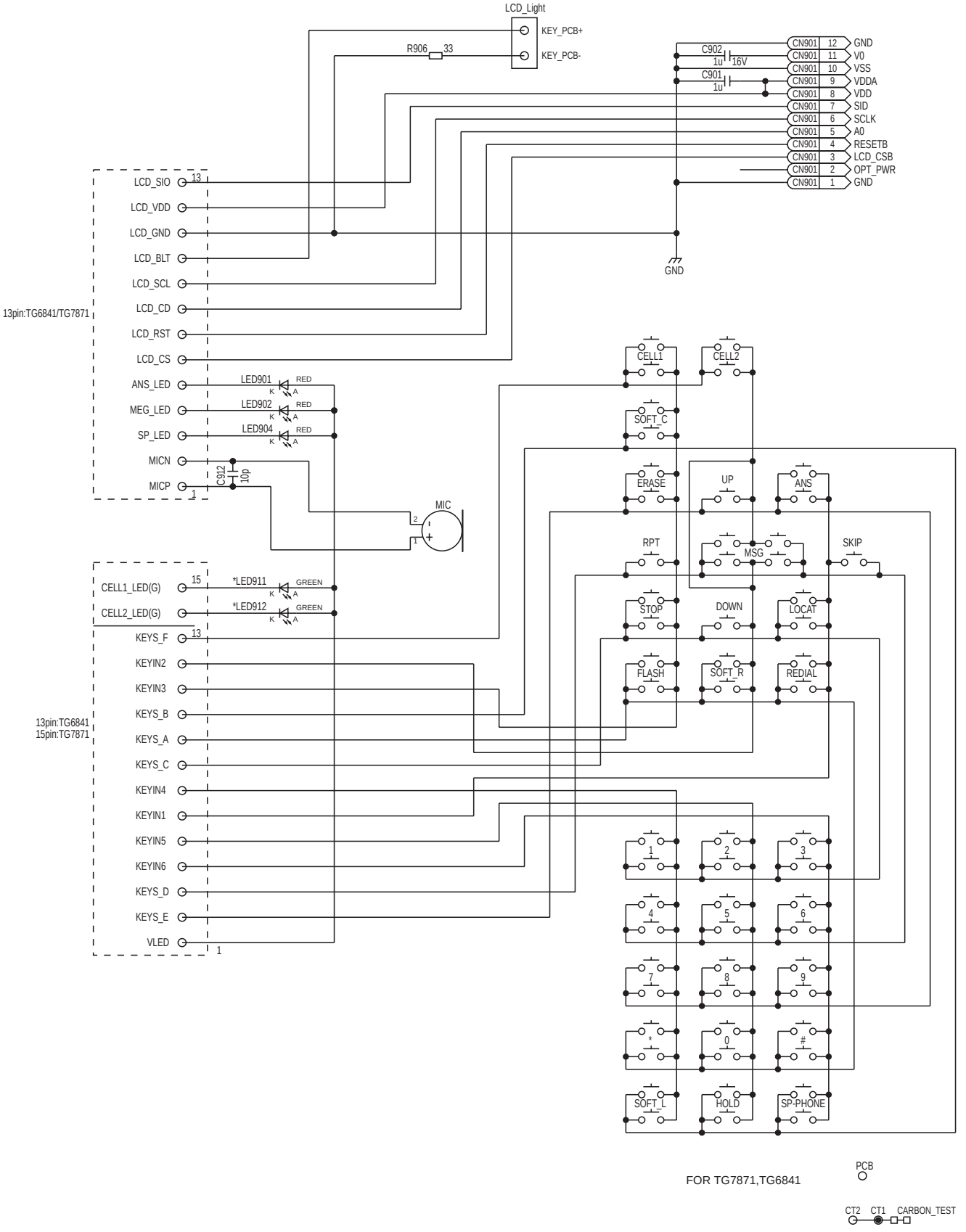




NC: No Components

KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385 SCHEMATIC DIAGRAM (Base Unit_RF)

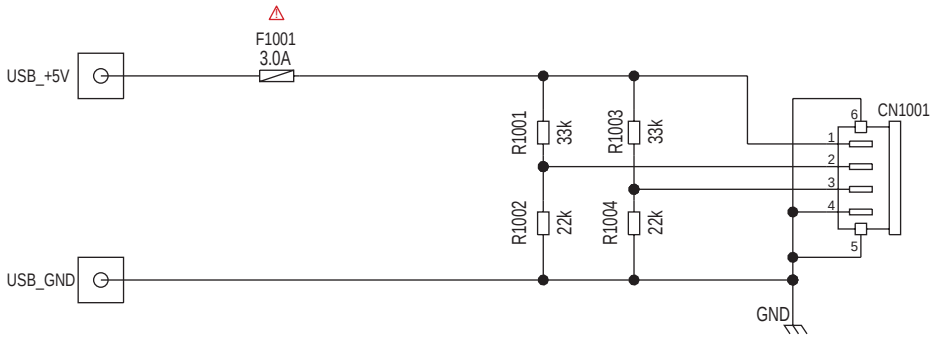
14.4. Schematic Diagram (Base Unit_Operation)



NC: No Components

KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385 SCHEMATIC DIAGRAM (Base Unit_Operation)

14.5. Schematic Diagram (Base Unit_USB Charge)



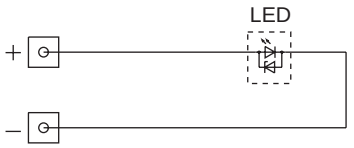
FOR TG7871H

PCB

NC: No Components

KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
SCHEMATIC DIAGRAM (Base Unit_USB Charge)

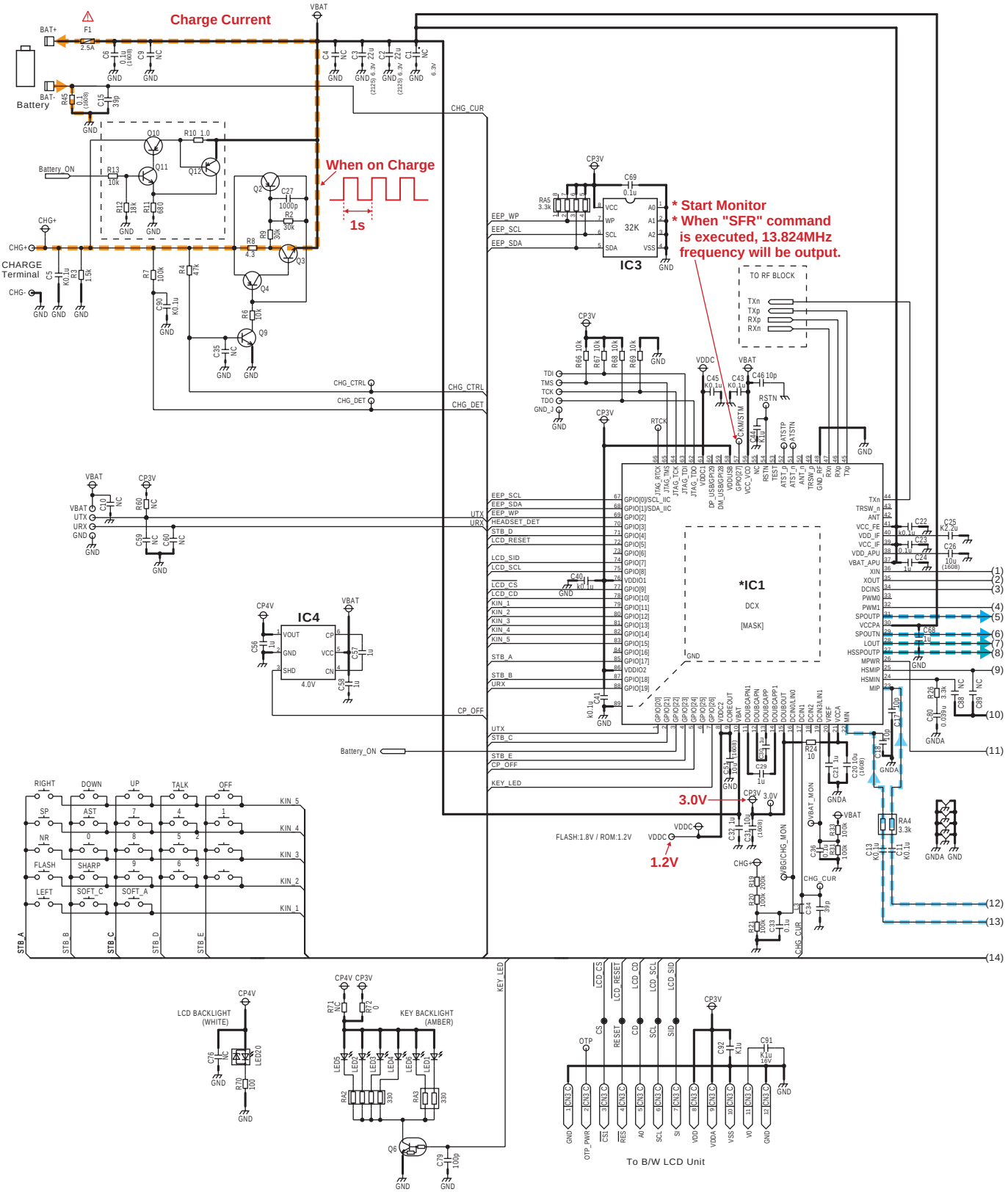
14.6. Schematic Diagram (Base Unit_LED)



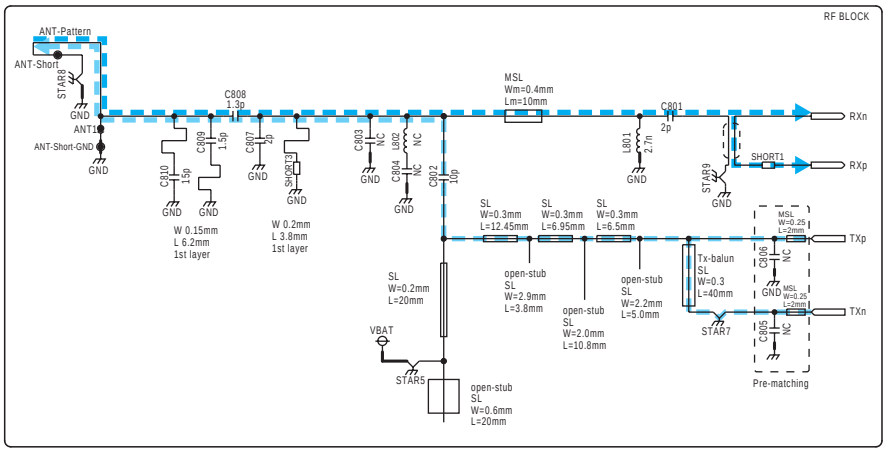
KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
SCHEMATIC DIAGRAM (Base Unit_LED)

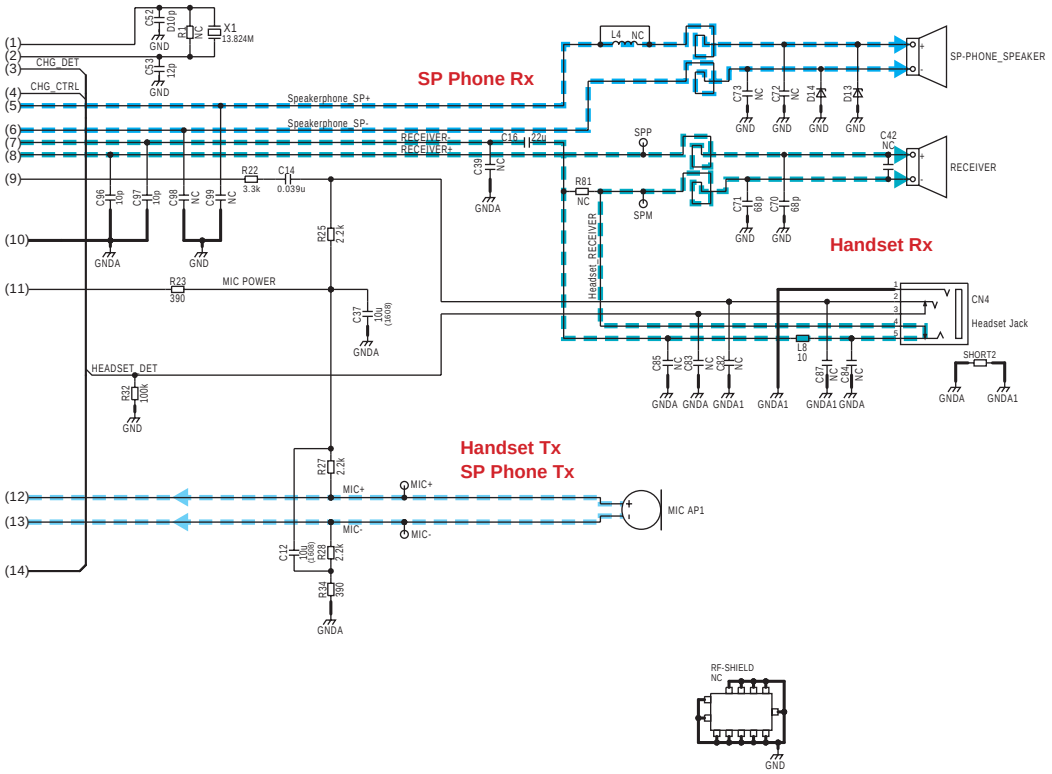
Memo

14.7. Schematic Diagram (Handset_Main)



NC: No Components





NC: No Components

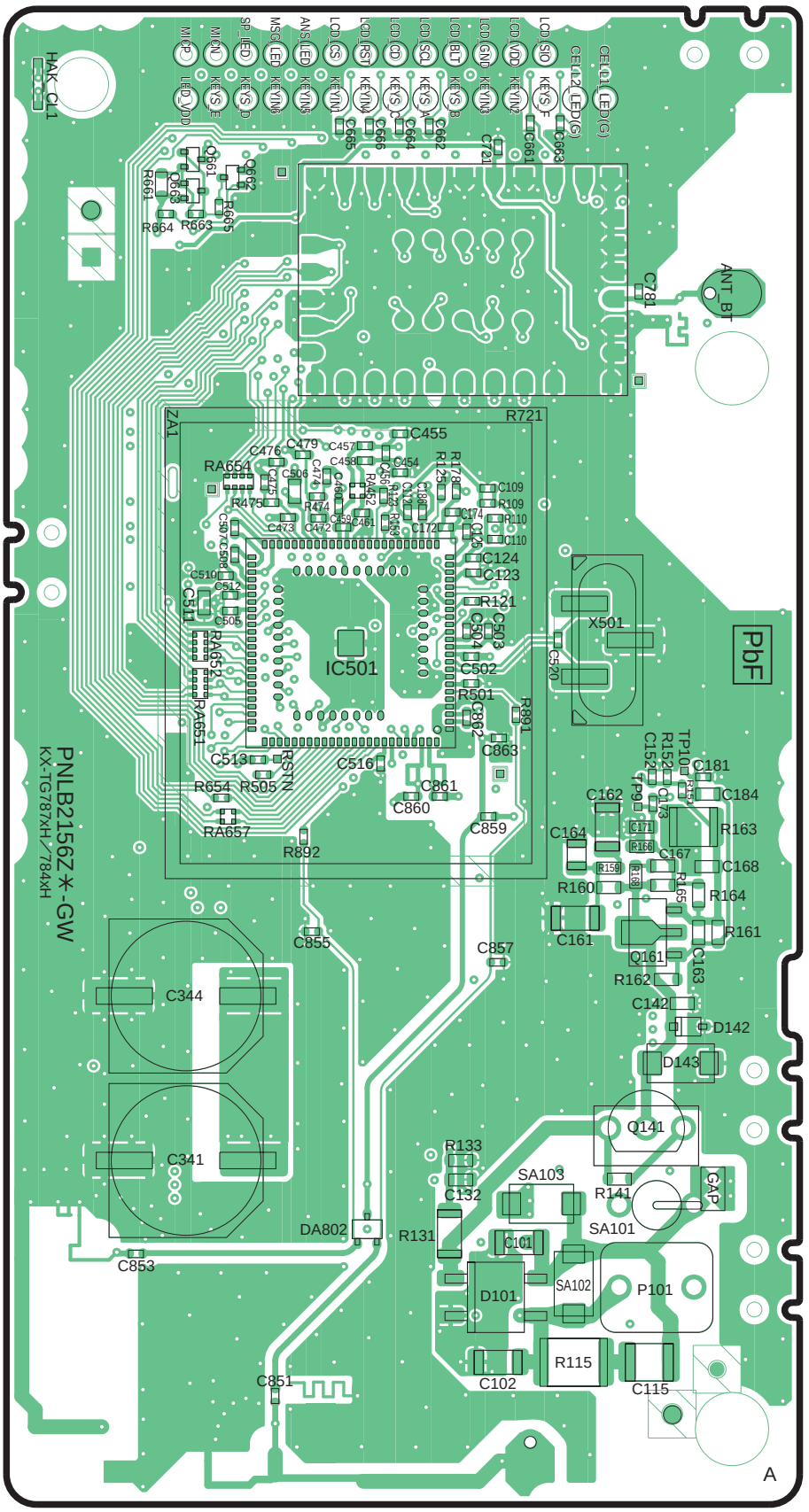
KX-TGA680 SCHEMATIC DIAGRAM (Handset_Main)

Memo

15 Printed Circuit Board

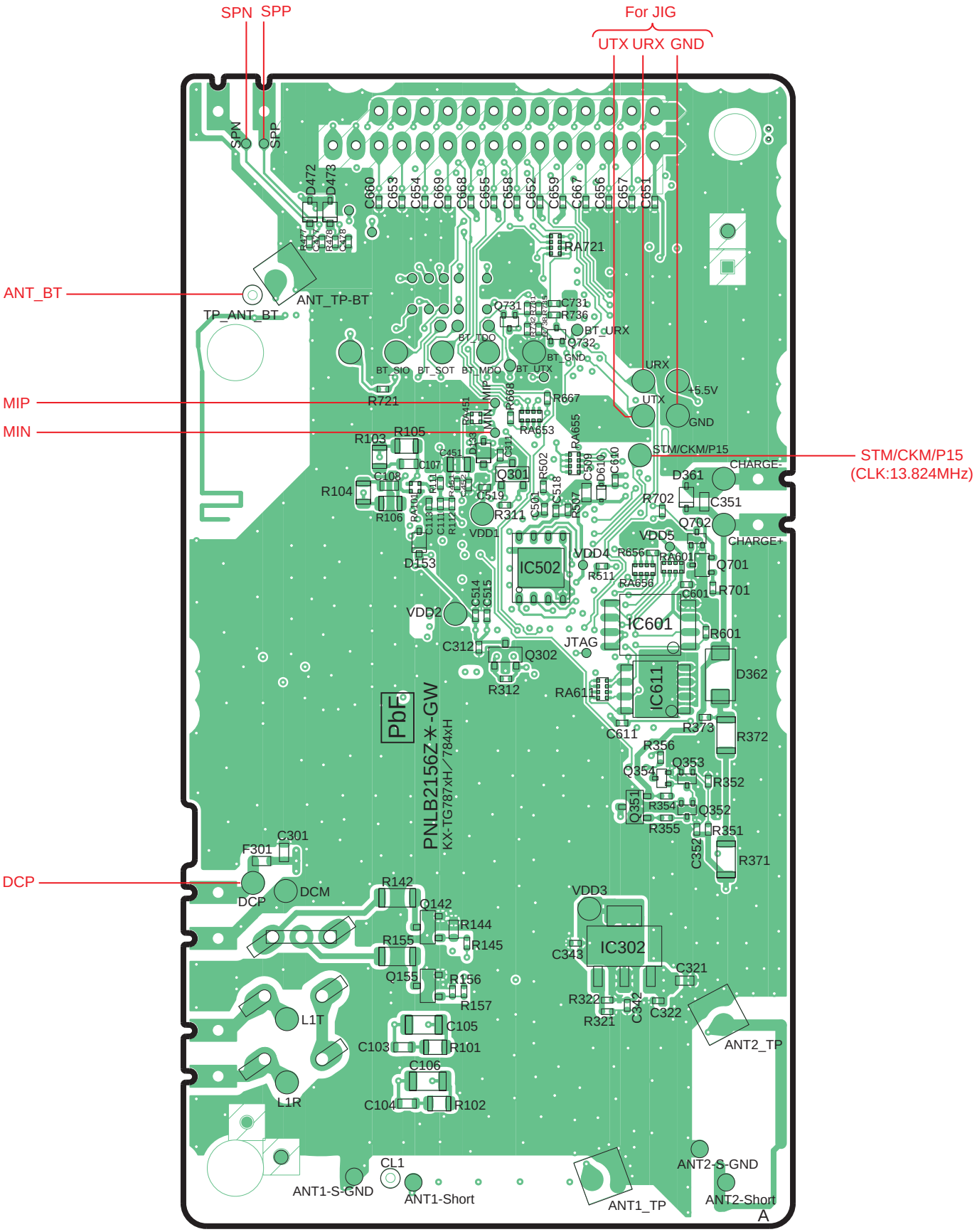
15.1. Circuit Board (Base Unit_Main)

15.1.1. Component View



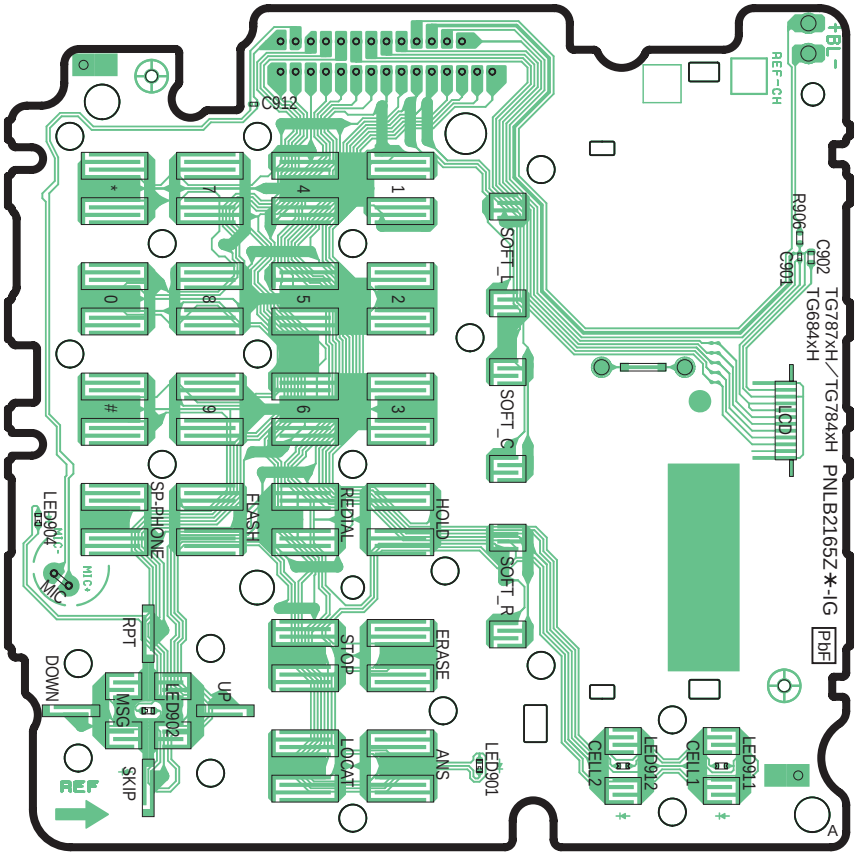
KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
CIRCUIT BOARD (Base Unit_Main (Component View))

15.1.2. Bottom View



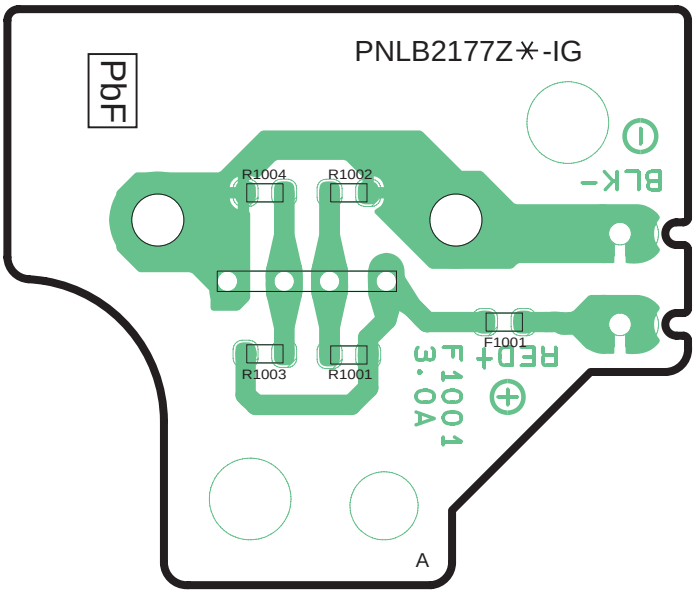
KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
CIRCUIT BOARD (Base Unit_Main (Bottom View))

15.2. Circuit Board (Base Unit_Operation)



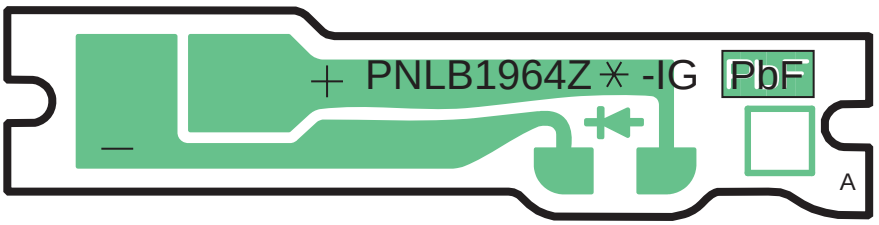
KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
CIRCUIT BOARD (Base Unit_Operation (Component View))

15.3. Circuit Board (Base Unit_USB Charge)



KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
CIRCUIT BOARD (Base Unit_USB (Component View))

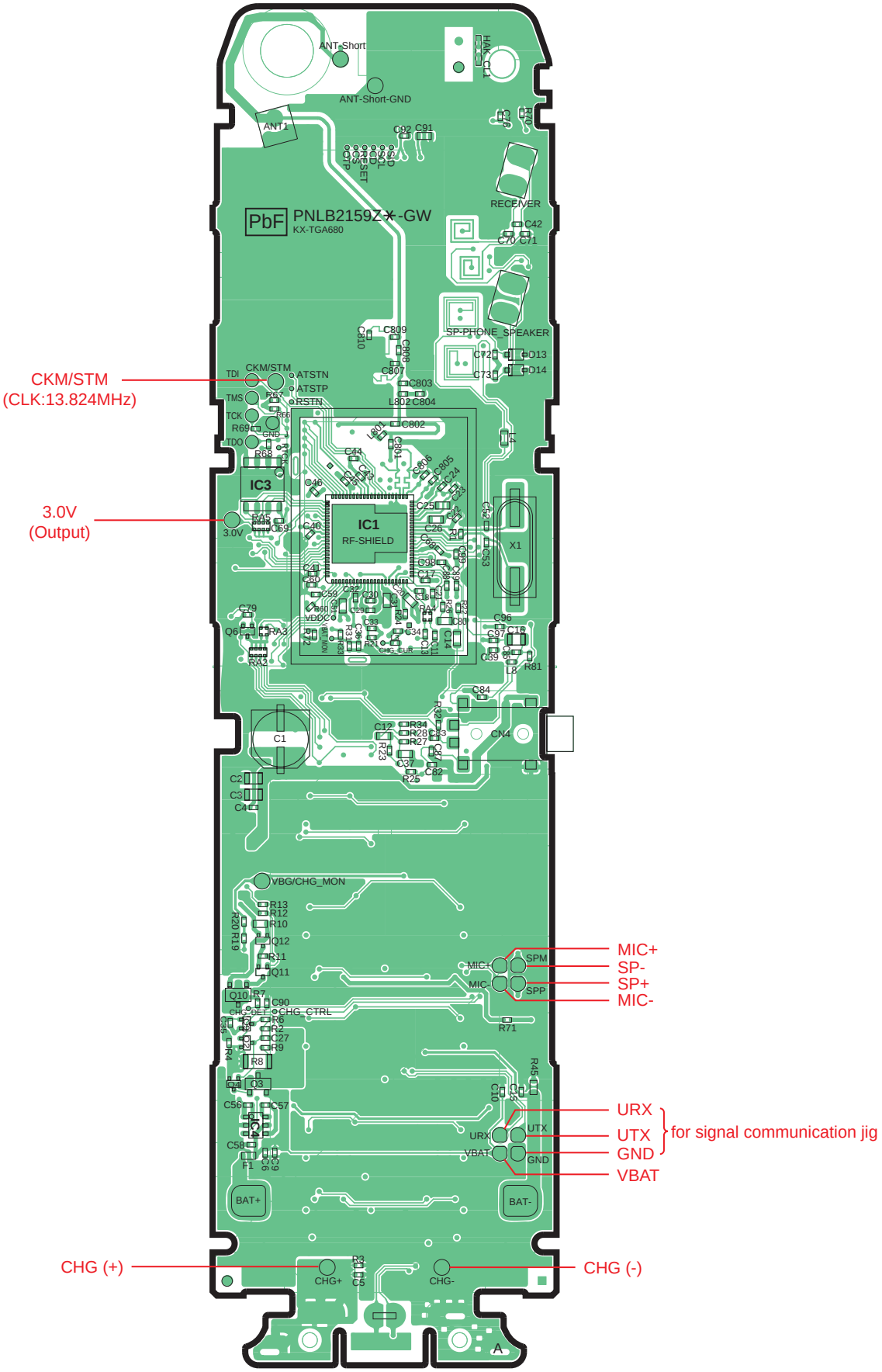
15.4. Circuit Board (Base Unit_LED)



KX-TG7841/7842/7843/7844/7845/365/7871/7872/7873/7874/7875/385
CIRCUIT BOARD (Base Unit_LED (Component View))

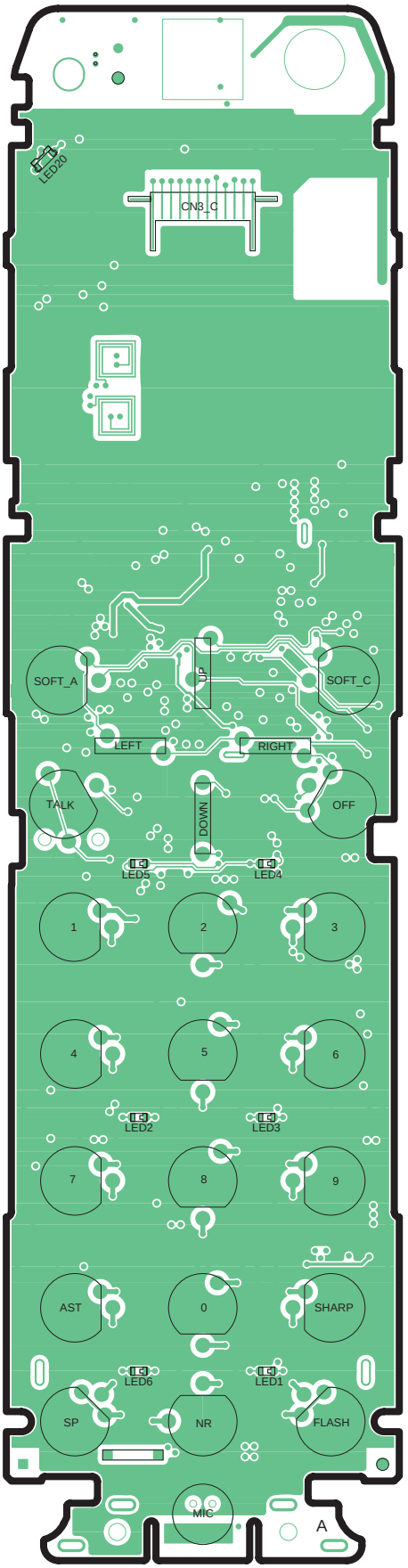
15.5. Circuit Board (Handset_Main)

15.5.1. Component View



KX-TGA680 CIRCUIT BOARD (Handset_Main (Component View))

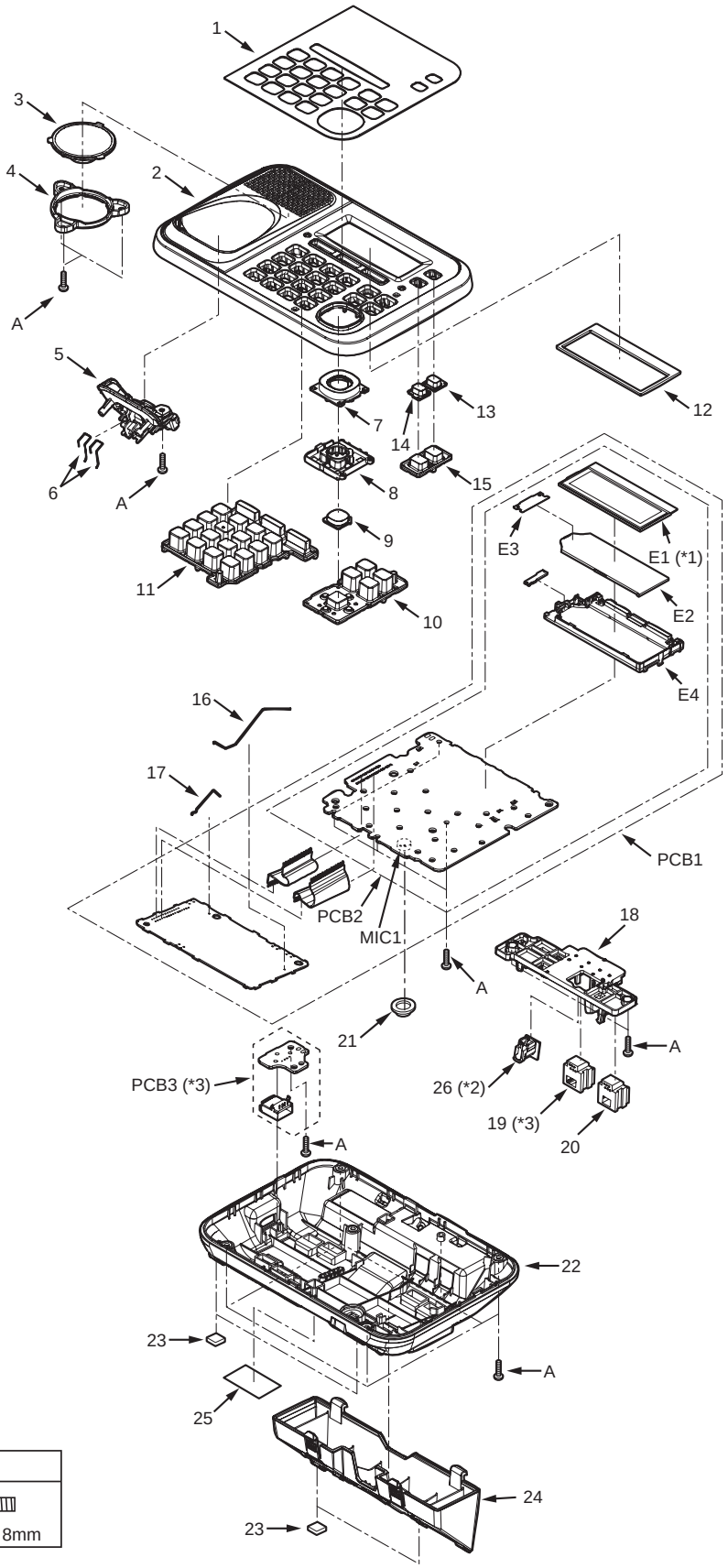
15.5.2. Bottom View



KX-TGA680 CIRCUIT BOARD (Handset_Main (Bottom View))

16 Exploded View and Replacement Parts List

16.1. Cabinet and Electrical Parts (Base Unit)



Ref.No.	Figure
A	ϕ2.6 x 8mm

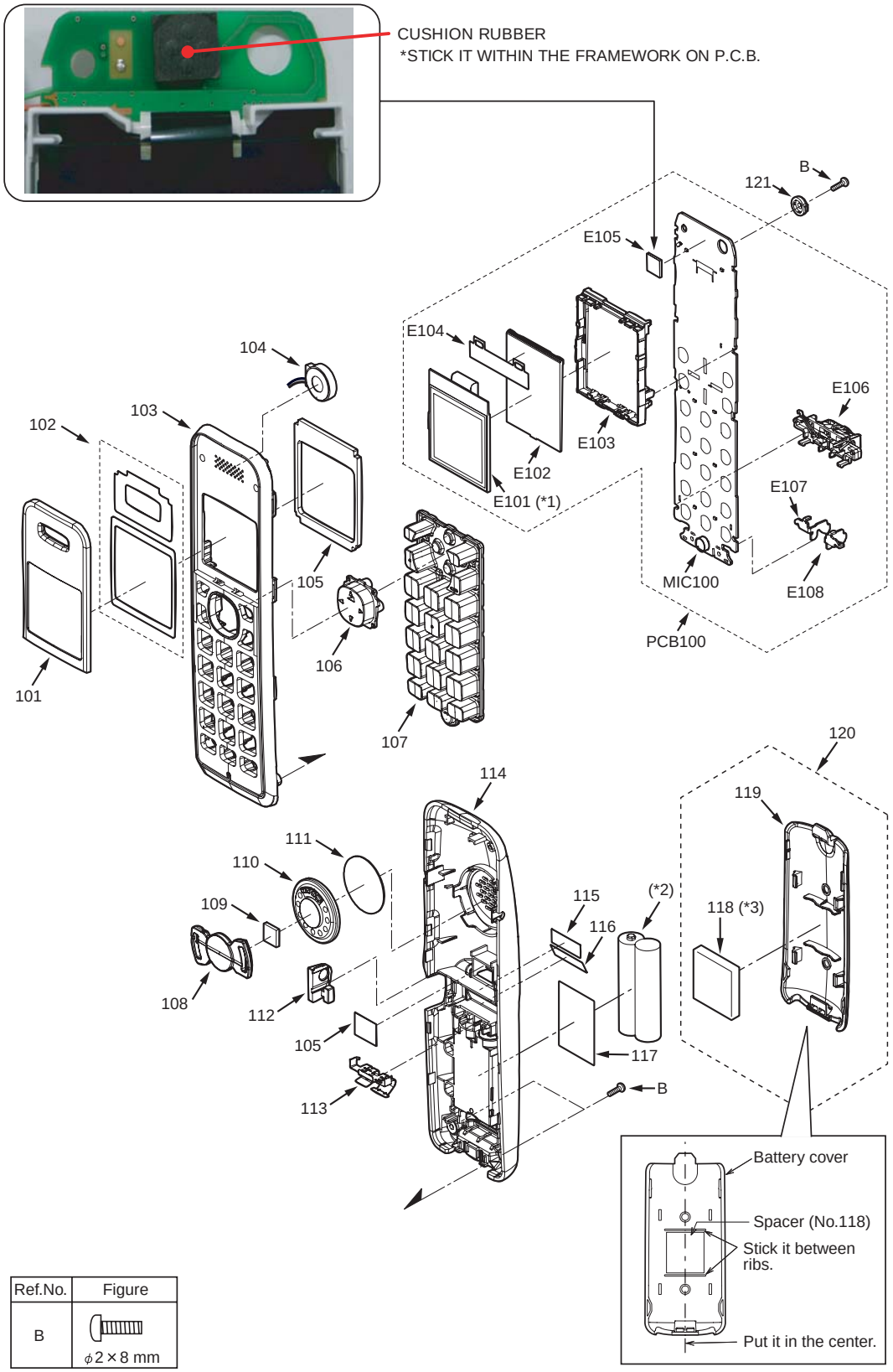
Note:

(*1) This cable is fixed by heat-sealing. Refer to **How to Replace the Base unit LCD** (P.54).

(*2) KX-TG7841/KX-TG7842/KX-TG7843/KX-TG7844/KX-TG7845/KX-TG365SK

(*3) KX-TG7871/KX-TG7872/KX-TG7873/KX-TG7874/KX-TG7875/KX-TG385SK

16.2. Cabinet and Electrical Parts (Handset)



Ref.No.	Figure
B	ϕ2 × 8 mm

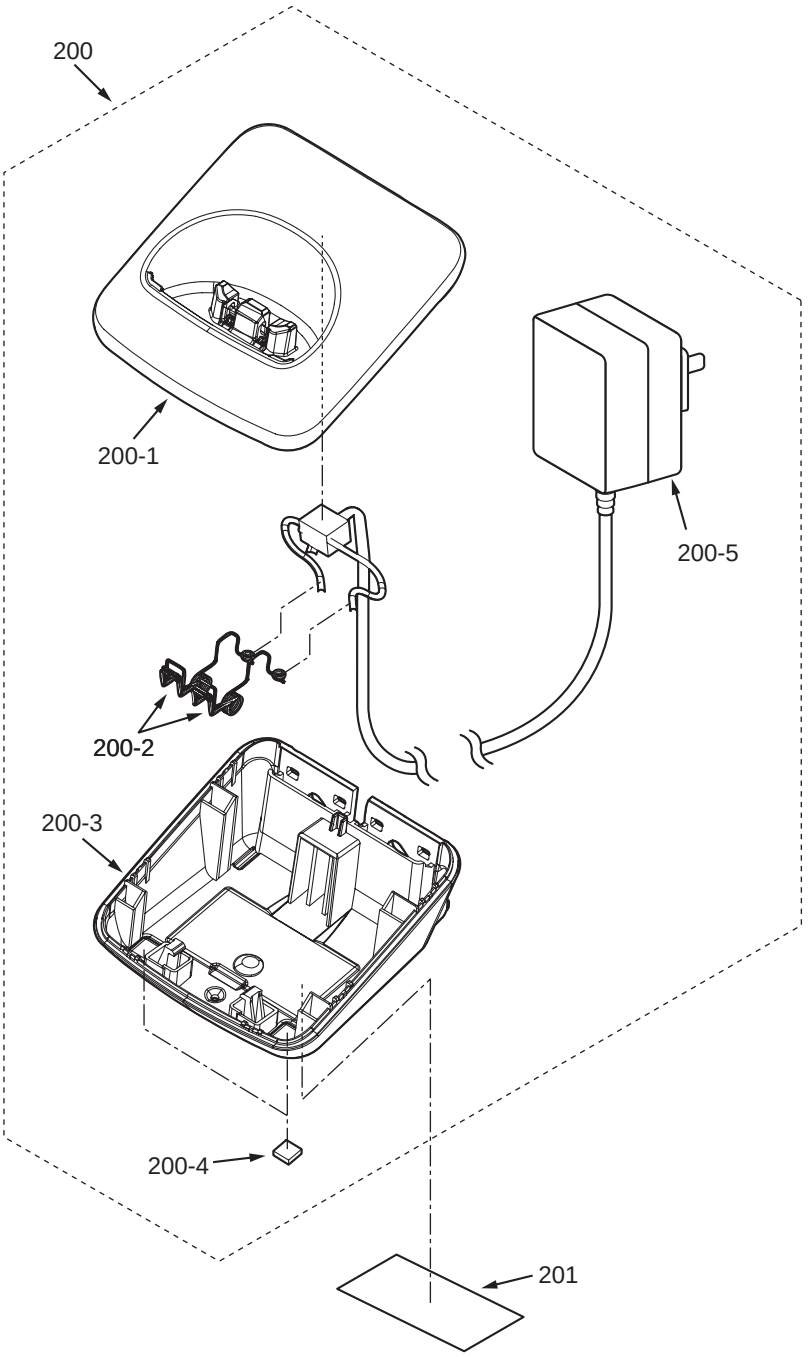
Note:

(*1) This cable is fixed by heat-sealing. Refer to **How to Replace the Handset LCD** (P.56).

(*2) The rechargeable Ni-MH battery HHR-4DPA is available through sales route of Panasonic.

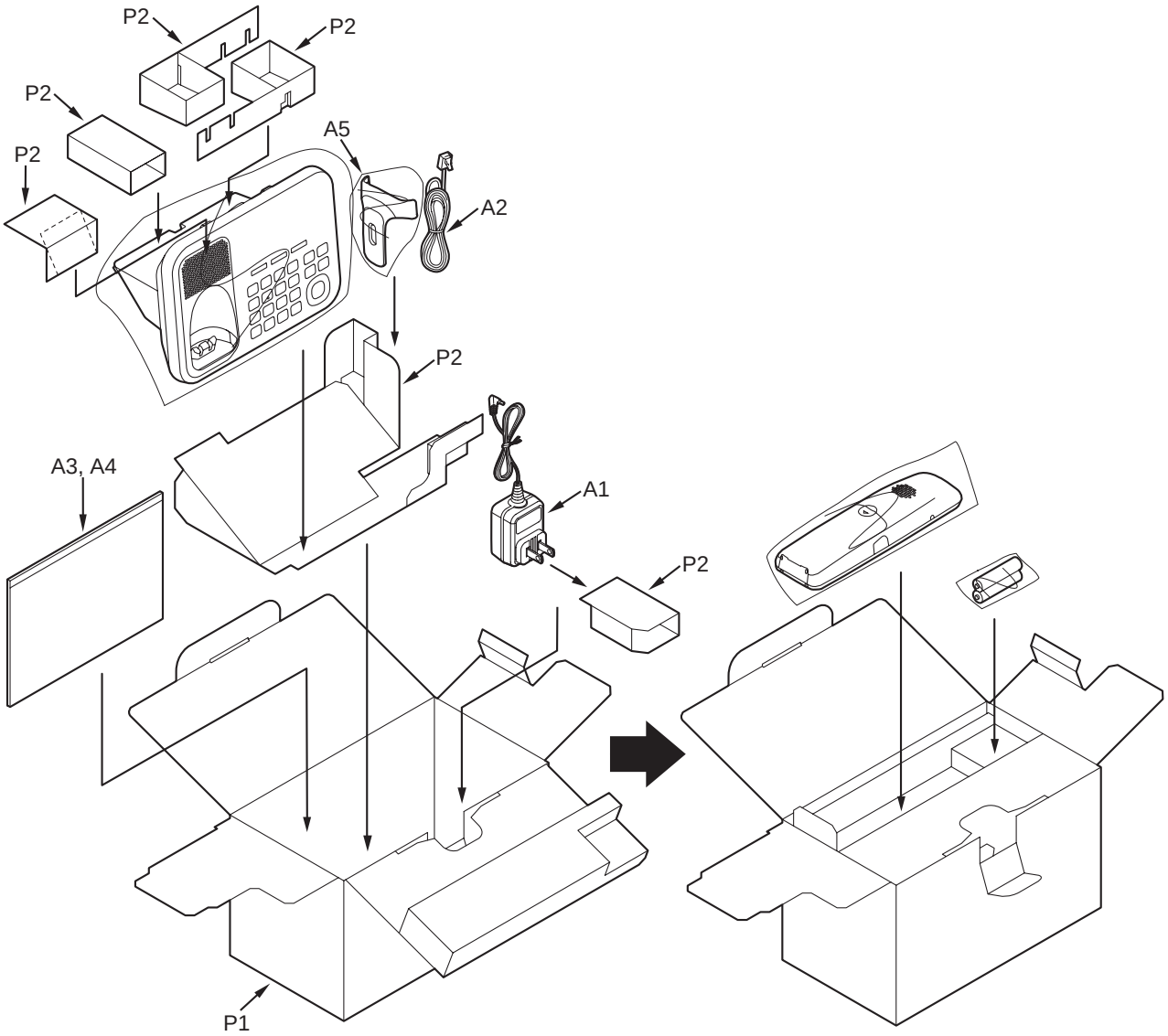
(*3) Attach the SPACER (No. 118) to the exact location described above.

16.3. Cabinet and Electrical Parts (Charger Unit)

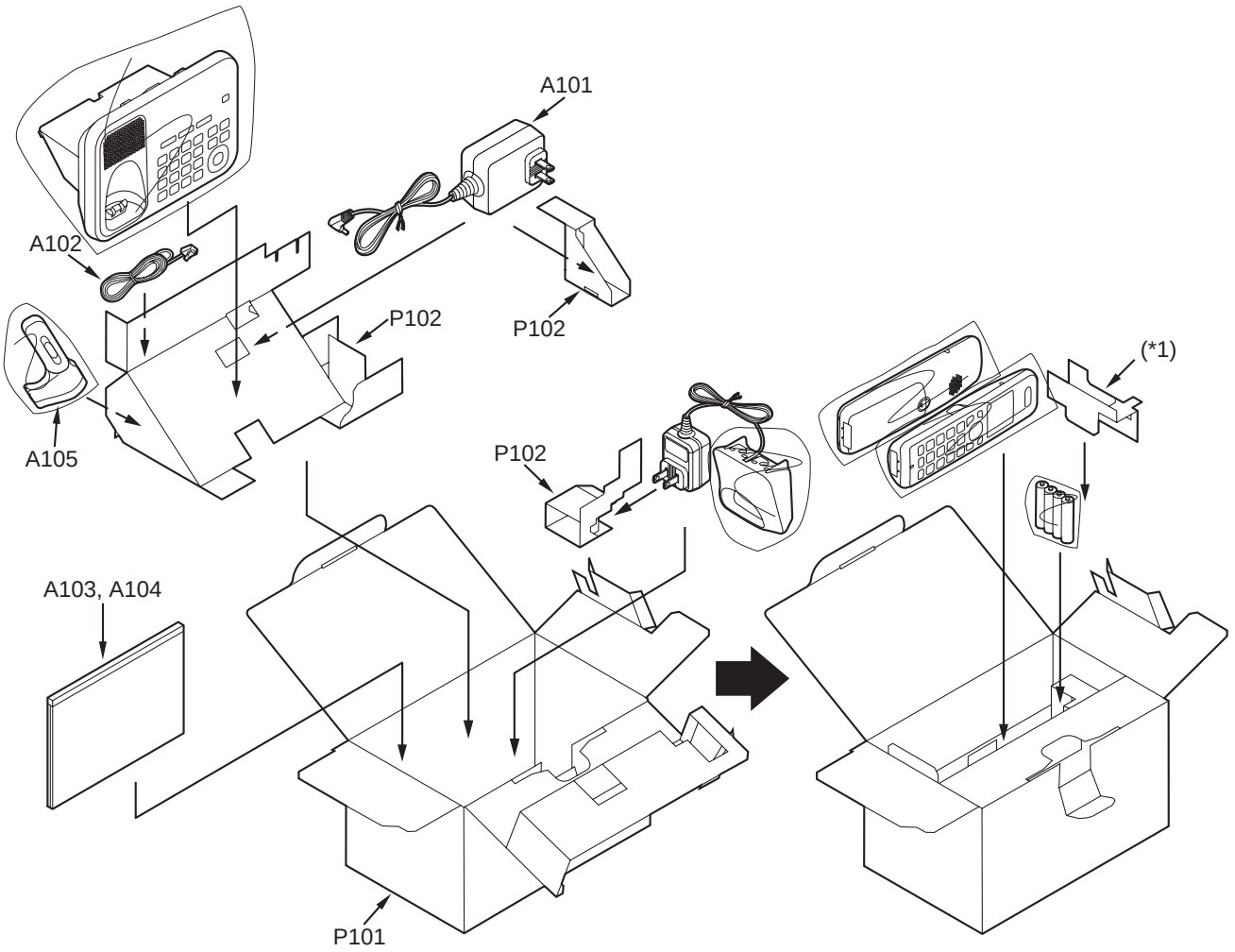


16.4. Accessories and Packing Materials

16.4.1. KX-TG7841S

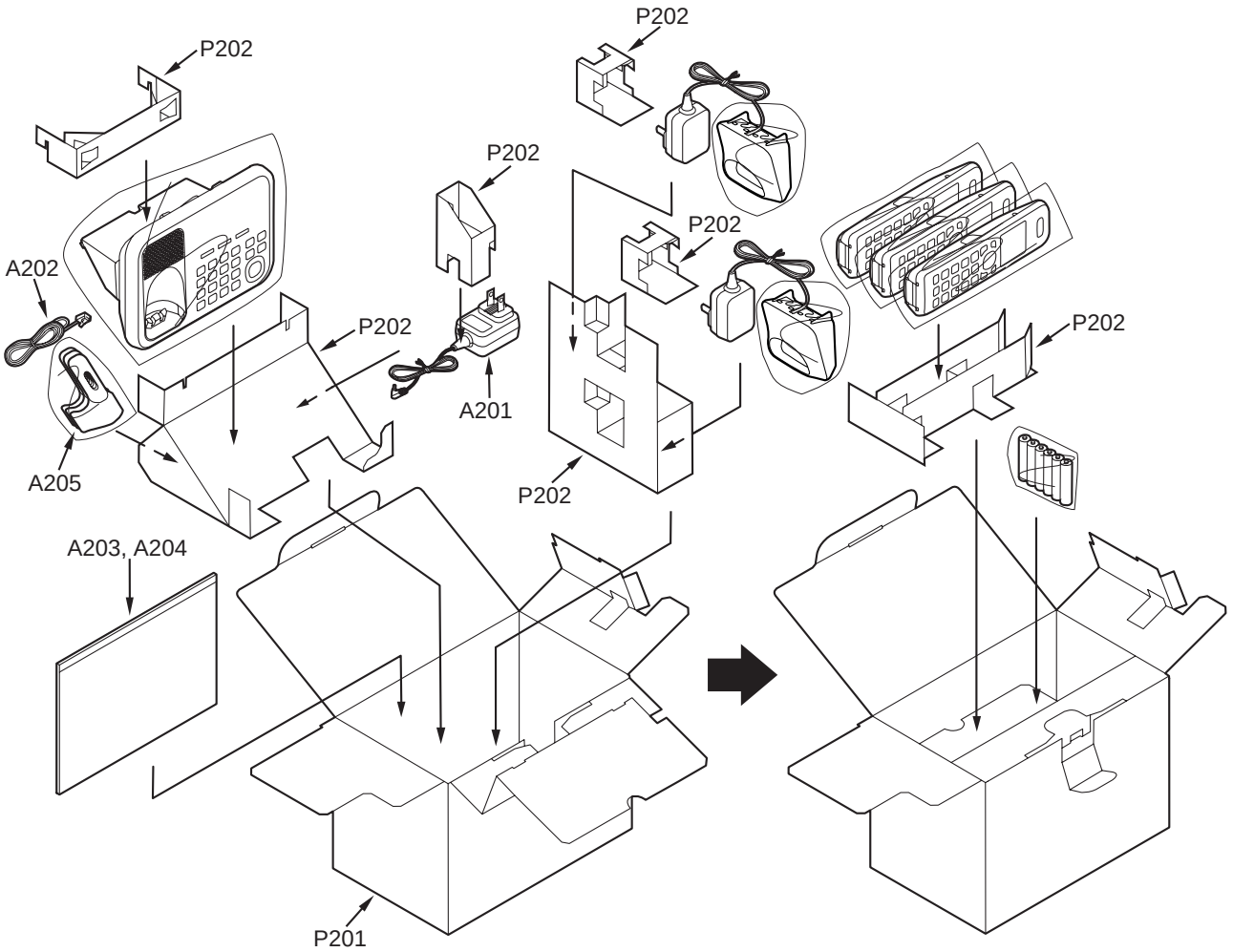


16.4.2. KX-TG7842S

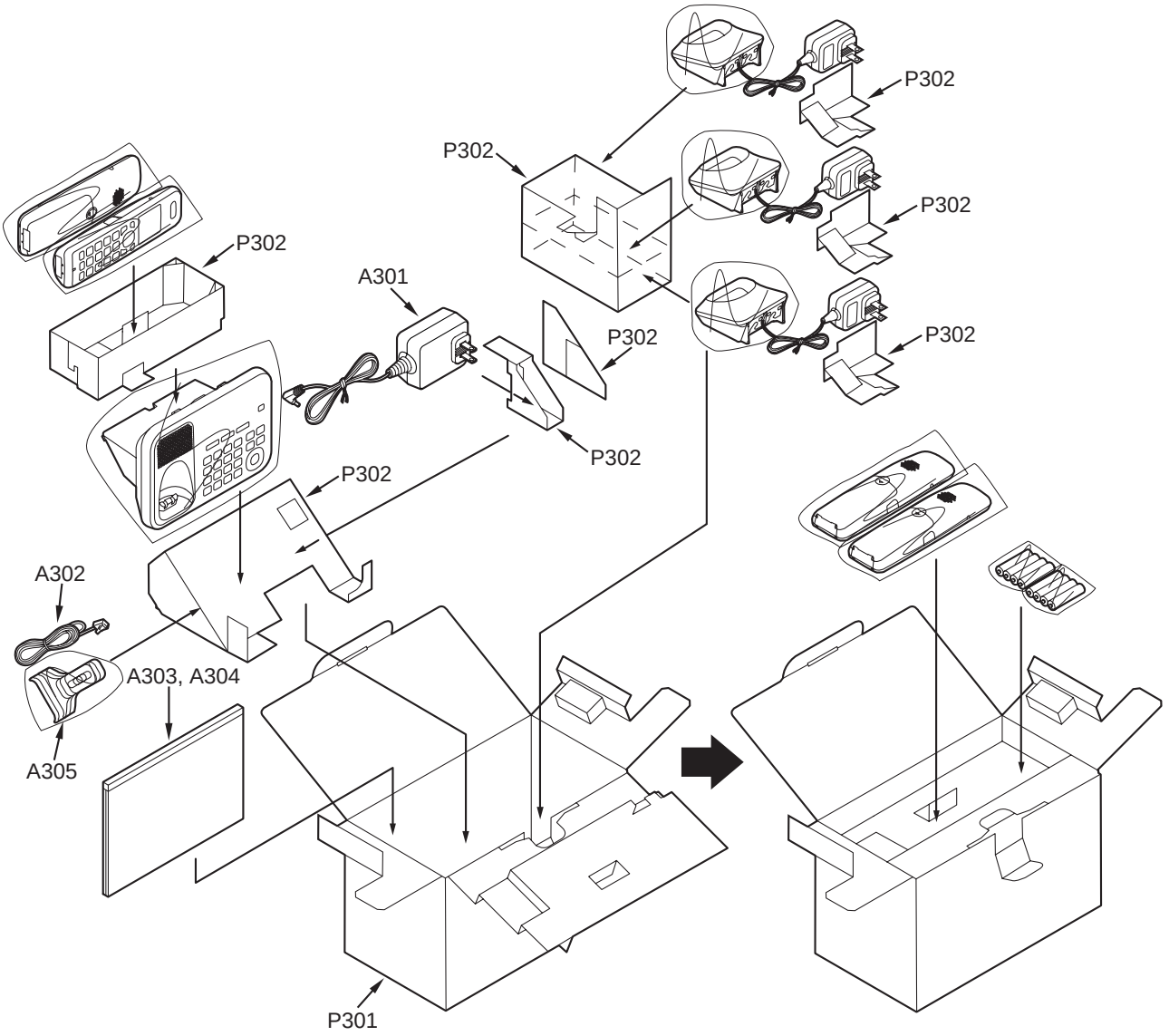


Note:
(*1) This pad is a piece of Ref No.P101 (GIFT BOX).

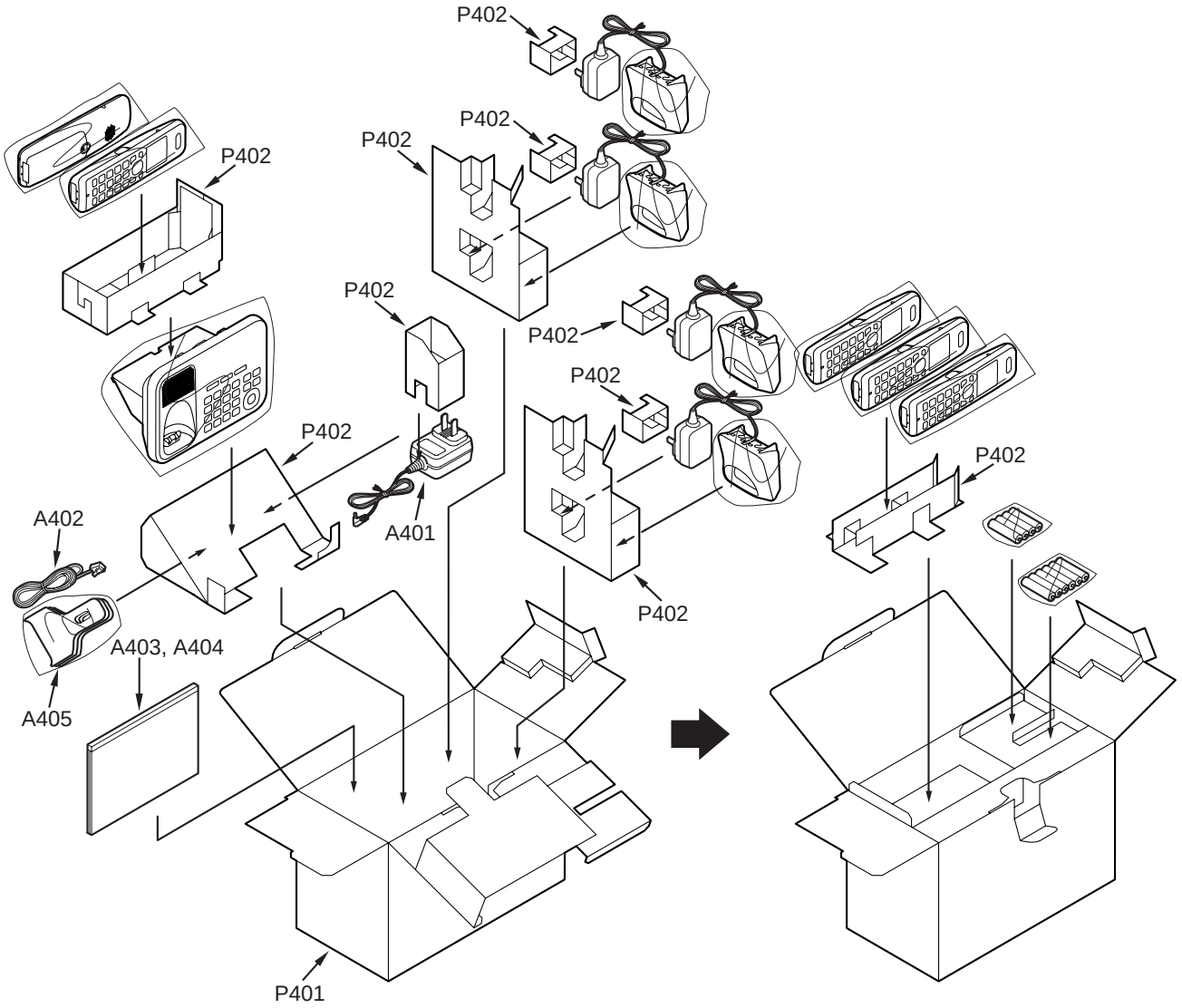
16.4.3. KX-TG7843S



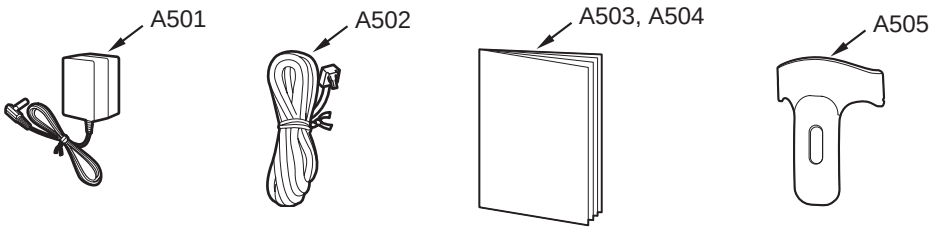
16.4.4. KX-TG7844S



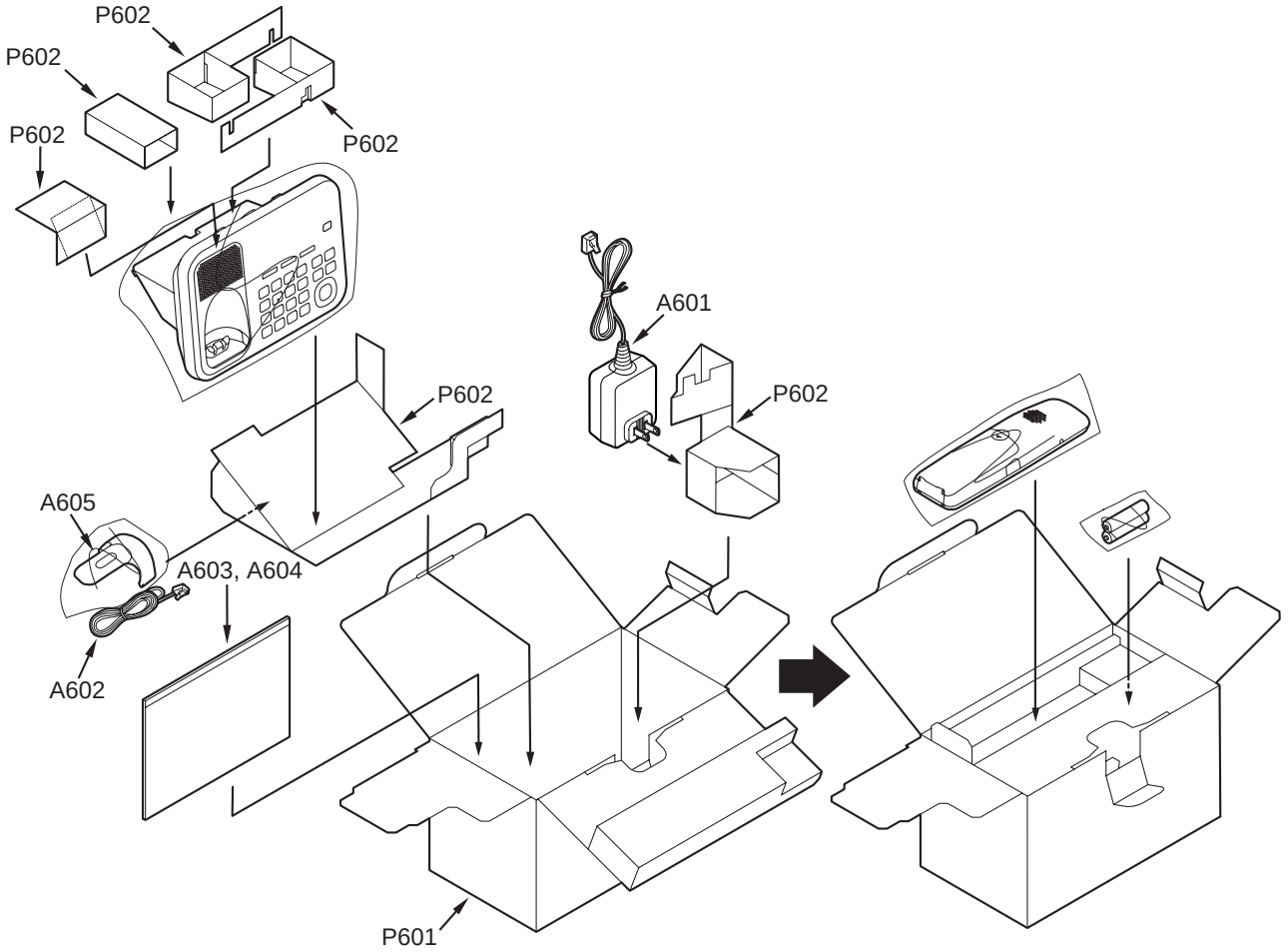
16.4.5. KX-TG7845S



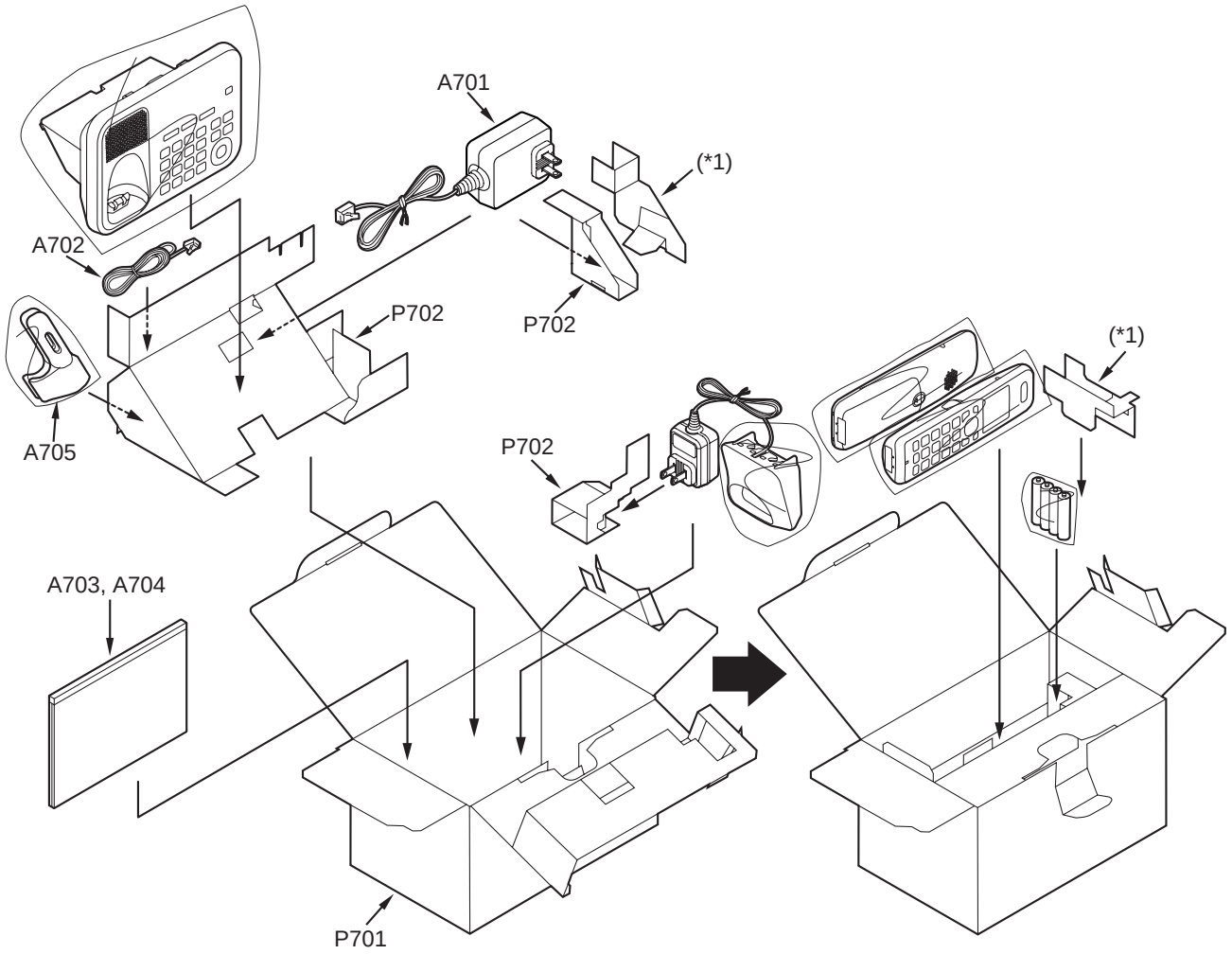
16.4.6. KX-TG365SK



16.4.7. KX-TG7871S

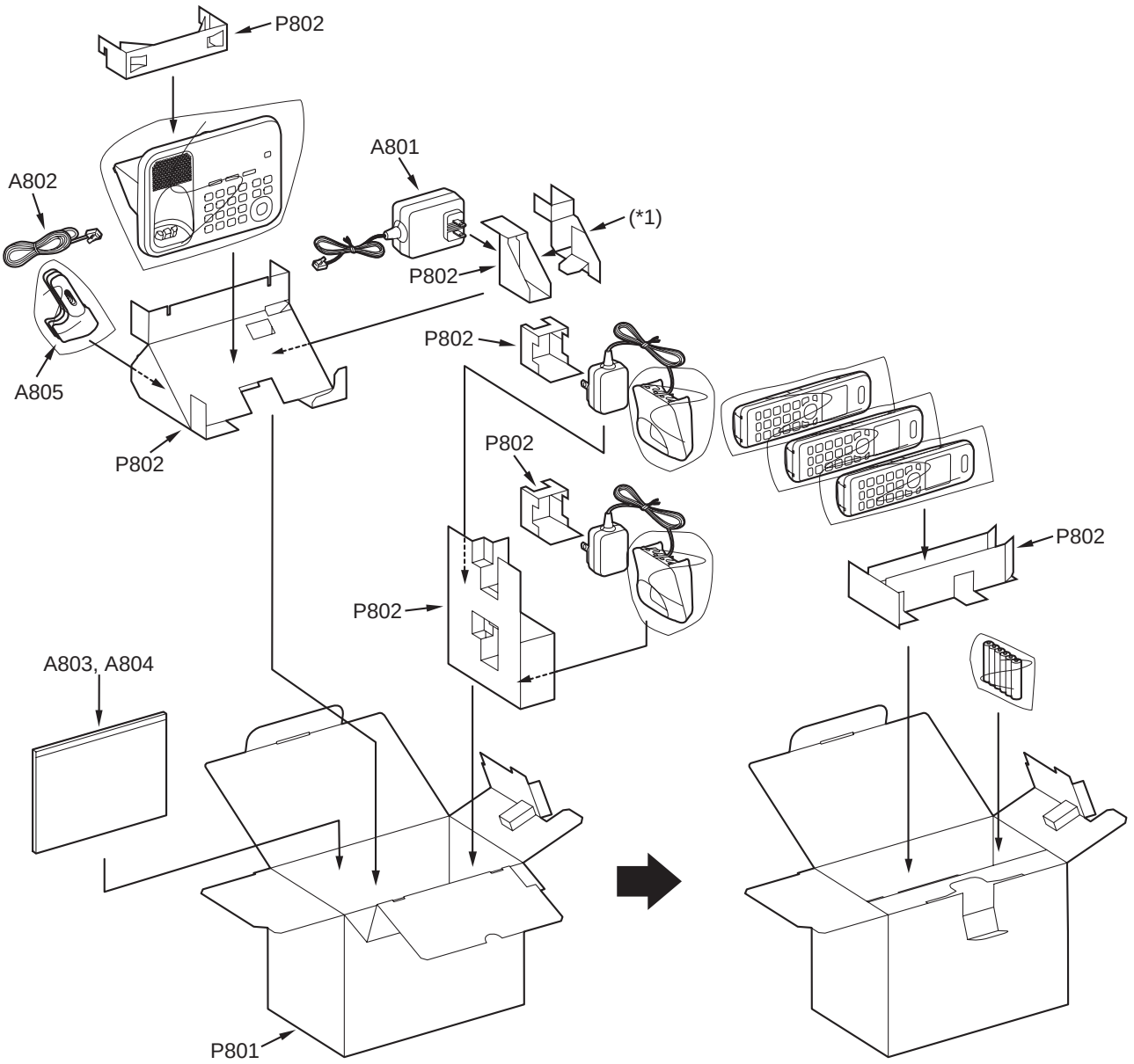


16.4.8. KX-TG7872S



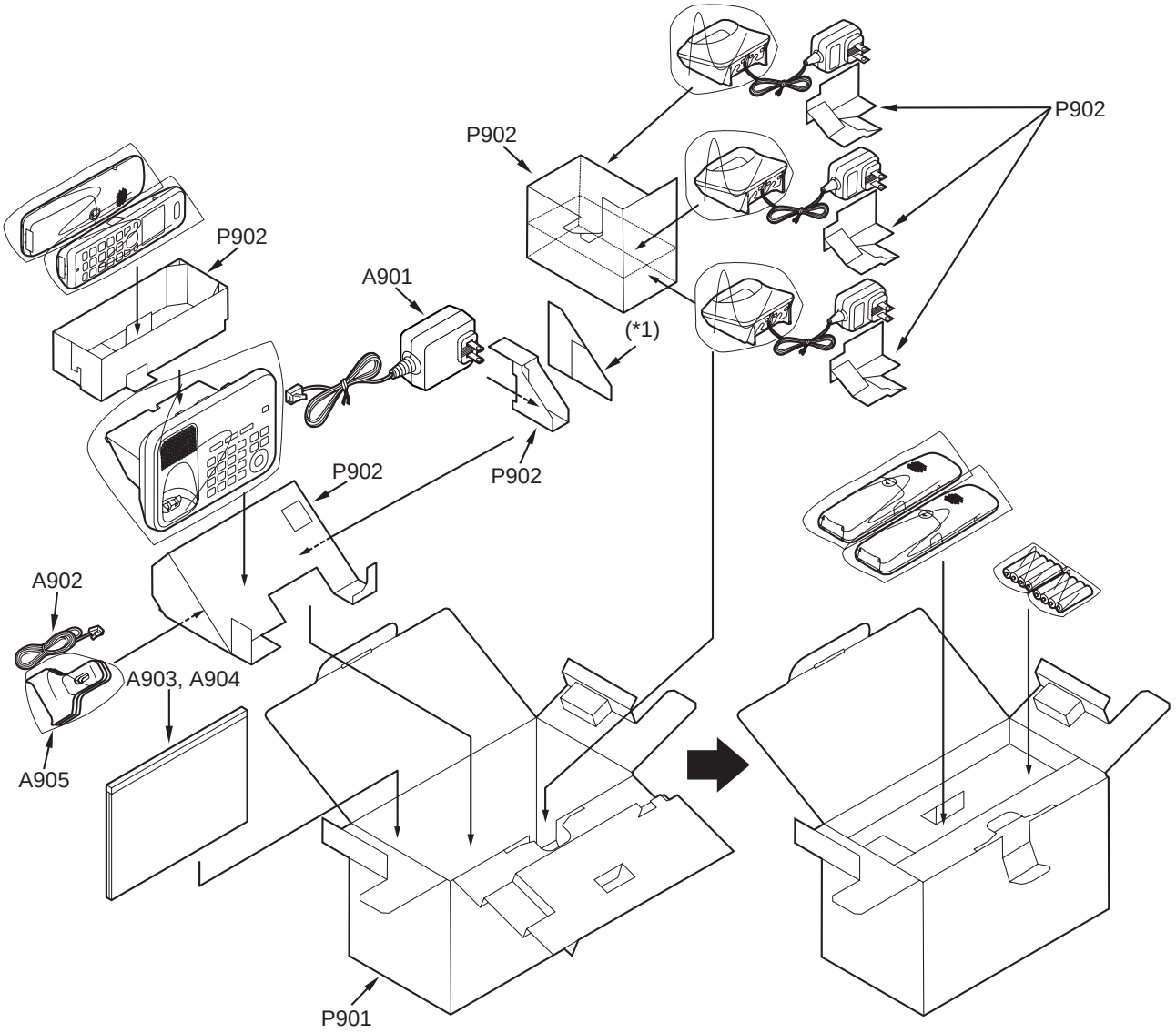
Note:
(*1) This pad is a piece of Ref No.P701 (GIFT BOX).

16.4.9. KX-TG7873S



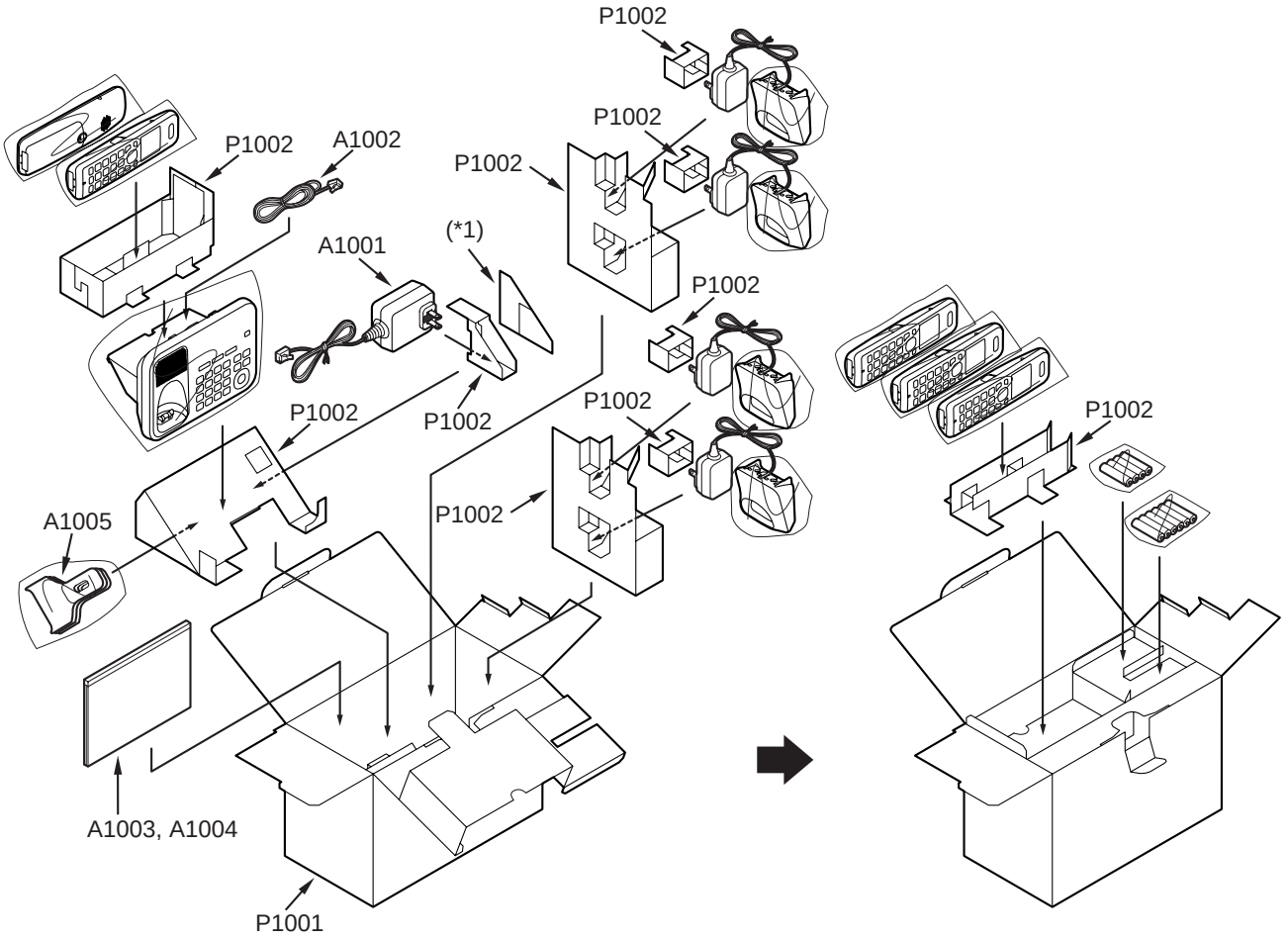
Note:
(*1) This pad is a piece of Ref No.P801 (GIFT BOX).

16.4.10. KX-TG7874S



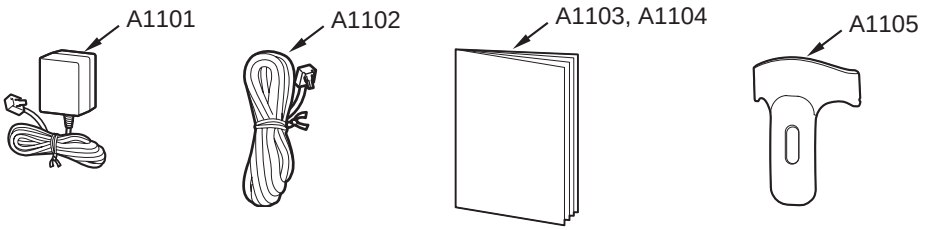
Note:
(*1) This pad is a piece of Ref No.P901 (GIFT BOX).

16.4.11. KX-TG7875S

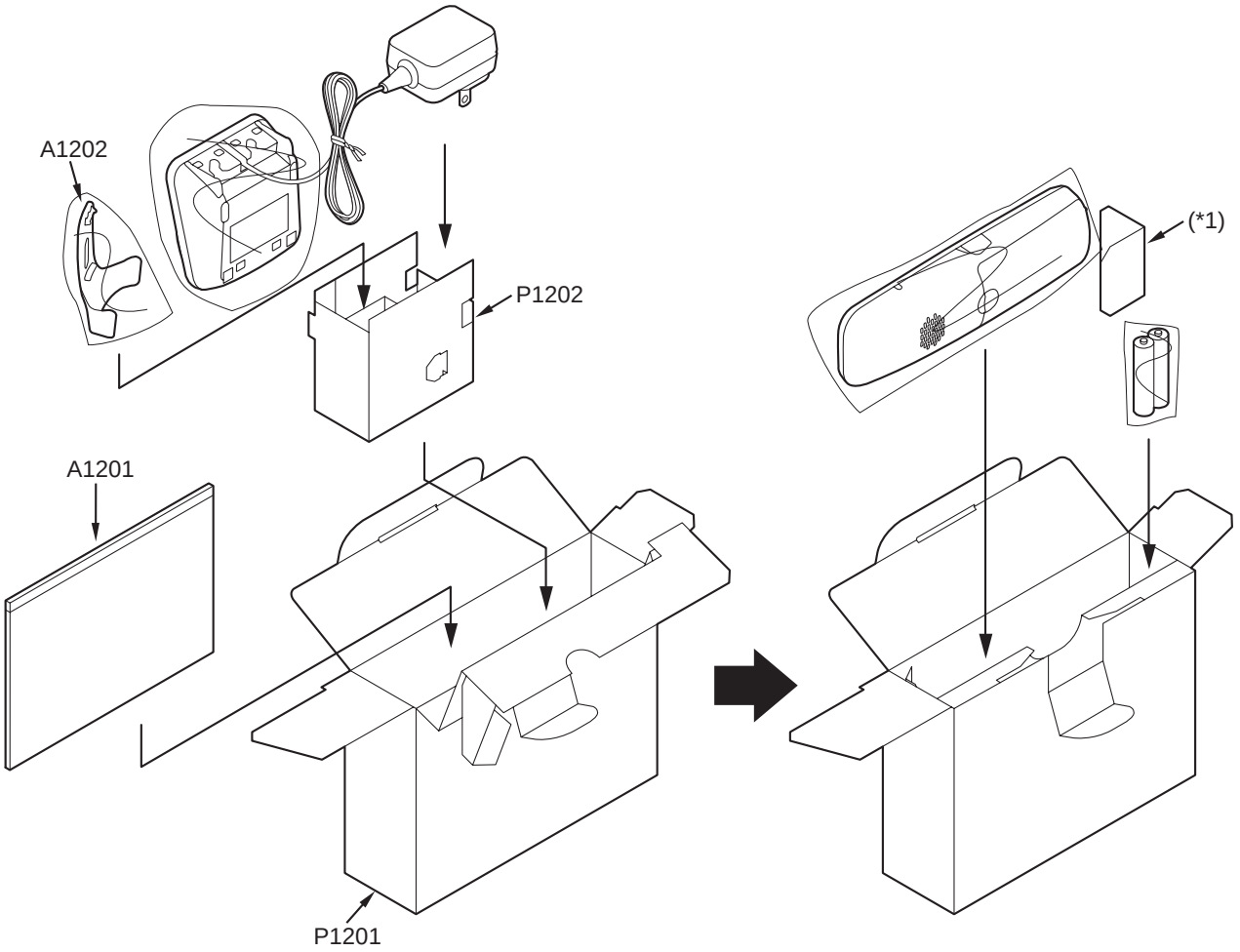


Note:
(*1) This pad is a piece of Ref No.P1001 (GIFT BOX).

16.4.12. KX-TG385SK



16.4.13. KX-TGA680S



Note:
(*1) This pad is a piece of Ref No.P1201 (GIFT BOX).

16.5. Replacement Parts List

1. RTL (Retention Time Limited)

   Note:

   The “RTL” marking indicates that its Retention Time is Limited.

   When production is discontinued, this item will continue to be available only for a specific period of time.

   This period of time depends on the type of item, and the local laws governing parts and product retention. At the end of this period, the item will no longer be available.

2. Important safety notice

   Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

   Unless otherwise specified;

   All resistors are in ohms (Ω) k=1000Ω, M=1000kΩ

   All capacitors are in MICRO FARADS (μF) p=μμF

   *Type & Wattage of Resistor

Type

ERC:Solid ERDS:Carbon ERJ:Chip	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage Of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV, ECUE:Chip ECQMS:Mica	ECCD,ECKD,ECBT,F1K,ECUV:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V

16.5.1. Base Unit

16.5.1.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PNGP1280X1	PANEL, UPPER (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	PC-HB
	1	PNGP1280Z1	PANEL, UPPER (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(for KX-TG385SK)	PC-HB
	2	PNKM1469X1	CABINET BODY	ABS-HB
	3	L0AA04A00028	SPEAKER	
	4	PQHR11082Z	GUIDE, SPEAKER	POM-HB
	5	PNKE1272Z2	CASE, CHARGE TERMINAL	PS-HB
	6	PNJT1144Z	CHARGE TERMINAL	
	7	PNBC1486Z1	BUTTON, NAVIGATOR KEY	ABS-HB
	8	PNHR1760Z	GUIDE, BUTTON	PS-HB
	9	PNBC1345Z1	BUTTON, MESSAGE	PMMA-HB
	10	PNJK1184Z	KEYBOARD SWITCH, TAM	
	11	PNJK1183Z	KEYBOARD SWITCH, DIAL	
	12	PNYE1014Z	SPACER, CUSHION LCD	
	13	PNBC1484Z1	BUTTON, CELL 1	PMMA-HB
	14	PNBC1485Z1	BUTTON, CELL 2	PMMA-HB
	15	PNJK1185Z	KEYBOARD SWITCH, CELL	
	16	PNLA1100Z	ANTENNA	
	17	PNLA1101Z	ANTENNA, BT	
	18	PNHR1759Z	GUIDE, JACK (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	PS-HB
	18	PNHR1778Z	GUIDE, JACK (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(for KX-TG385SK)	PS-HB
	19	PNJJ041006ZA	JACK, MODULAR (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(for KX-TG385SK)	
	20	PQJJ1T039H	JACK, MODULAR	
	21	PQMG10025W	RUBBER PARTS, MIC	
	22	PNKF1273Z1	CABINET COVER (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	PS-HB
	22	PNKF1273Y1	CABINET COVER (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(forKX-TG385SK)	PS-HB
	23	PNHA1013Z	RUBBER PARTS, FOOT CUSHION	
	24	PNKL1038Z1	STAND, WALL MOUNT	ABS-HB
	25	PNGT7152Z	NAME PLATE (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	
	25	PNGT7261Z	NAME PLATE (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(for KX-TG385SK)	
	26	K2ECYZ000001	JACK, DC (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	

16.5.1.2. Main P.C. Board Parts

Note:

(*1) When replacing IC501, IC502, IC601, IC611 or X501, make the adjustment using PNZZTG7871M. Refer to **How to download the data** (P.63) of Things to Do after Replacing IC or X'tal.

(*2) When replacing the base unit LCD, See **How to Replace the Base unit LCD** (P.54).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWP1TG7841H	MAIN P.C.BOARD ASS'Y (RTL) (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	
	PCB1	PNWP1TG7871H	MAIN P.C.BOARD ASS'Y (RTL) (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(for KX-TG385SK)	
			(ICs)	
	IC302	C0DBEYY00102	IC	
	IC501	C1CB00003663	IC (*1)	
	IC502	PNWI2TG7871H	IC(FLASH) (*1)	
	IC601	PNWI3TG7871H	IC(FLASH) (*1)	
	IC611	PNWI1TG7841H	IC(EEPROM)(*1) (for KX-TG7841S)(for KX-TG7842S)(for KX-TG7843S)(for KX-TG7844S)(for KX-TG7845S)(for KX-TG365SK)	
	IC611	PNWI1TG7871H	IC(EEPROM)(*1) (for KX-TG7871S)(for KX-TG7872S)(for KX-TG7873S)(for KX-TG7874S)(for KX-TG7875S)(for KX-TG385SK)	
			(TRANSISTORS)	
	Q141	B1ACGP000008	TRANSISTOR(SI)	
	Q142	B1ABDM000001	TRANSISTOR(SI)	
	Q161	DSC7003S0L	TRANSISTOR(SI)	
	Q301	B1ADGE000012	TRANSISTOR(SI)	
	Q302	B1ADGE000012	TRANSISTOR(SI)	
	Q351	B1ADNB000003	TRANSISTOR(SI)	
	Q352	2SC6054JSL	TRANSISTOR(SI)	S
	Q353	2SC6054JSL	TRANSISTOR(SI)	S
	Q354	2SC6054JSL	TRANSISTOR(SI)	S
	Q661	B1ADCF000040	TRANSISTOR(SI)	
	Q662	B1GBCFGA0021	TRANSISTOR(SI)	
	Q701	2SA1576S	TRANSISTOR(SI)	S
	Q702	B1GBCFYY0020	TRANSISTOR(SI)	
	Q731	2SC6054JSL	TRANSISTOR(SI)	S
	Q732	2SC6054JSL	TRANSISTOR(SI)	S
			(DIODES)	
	D101	B0EDER000009	DIODE(SI)	
	D133	DA2J10100L	DIODE(SI)	
	D142	DY2J25000L	DIODE(SI)	
	D362	B0ECKM000008	DIODE(SI)	
	D472	B0BC4R3A0006	DIODE(SI)	
	D473	B0BC4R3A0006	DIODE(SI)	
	D610	B0JCDD000001	DIODE(SI)	
	DA802	B0DDCD000001	DIODE(SI)	
			(COIL)	
	C781	G1C4N7Z00006	COIL	
			(RESISTOR ARRAYS)	
	RA101	EXB24V102JX	RESISTOR ARRAY	
	RA451	EXB24V222J	RESISTOR ARRAY	
	RA452	EXB24V272J	RESISTOR ARRAY	
	RA601	EXB28V561JX	RESISTOR ARRAY	
	RA611	EXB28V332JX	RESISTOR ARRAY	
	RA651	D1H810240004	RESISTOR ARRAY	S
	RA652	D1H810240004	RESISTOR ARRAY	S
	RA653	D1H810240004	RESISTOR ARRAY	S
	RA654	D1H810240004	RESISTOR ARRAY	S
	RA655	EXB28V473JX	RESISTOR ARRAY	
	RA656	EXB28V473JX	RESISTOR ARRAY	
	RA657	EXB24V101JX	RESISTOR ARRAY	
	RA721	D1H810240004	RESISTOR ARRAY	S
			(BT UNIT)	
	IC721	PNWP3TG7871H	BT UNIT	
			(VARISTOR)	
	SA101	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	S
			(RESISTORS)	
	R101	PQ4R10XJ475	4.7M	S
	R102	PQ4R10XJ475	4.7M	S
	R103	PQ4R10XJ184	180k	S
	R104	PQ4R10XJ184	180k	S
	R105	PQ4R10XJ105	1M	S
	R106	PQ4R10XJ105	1M	S
	R109	ERJ2GEJ823	82k	S
	R110	ERJ2GEJ823	82k	S
	R111	D0GA392JA015	3.9k	
	R112	D0GA124JA015	120k	
	R121	D0GA102JA021	1k	
	R123	D0GA102JA021	1k	
	R125	D0GA271JA015	270	
	R131	PQ4R18XJ106	10M	S
	R133	ERJ3GEYJ154	150k	S
	R141	D0GB104JA057	100k	
	R142	PQ4R18XJ272	2.7k	S
	R145	D0GA222JA021	2.2k	
	R151	D0GA104JA021	100k	
	R152	ERJ2GEJ134X	130k	S
	R153	D0GA102JA021	1k	
	R160	ERJ3GEYJ821	820	S
	R161	D0GB104JA057	100k	
	R162	D0GB473JA057	47k	
	R163	D0GG390JA007	39	
	R164	D0GB272JA057	2.7k	
	R165	ERJ3GEYJ273	27k	S
	R166	ERJ3GEYJ822	8.2k	S
	R168	ERJ3GEYJ472	4.7k	S
	R178	D0GA332JA015	3.3k	
	R311	D0GA103JA021	10k	
	R312	D0GA103JA021	10k	
	R321	ERJ2RKF1400	140	
	R322	ERJ2RKF1000	100	
	R351	D0GA333JA015	33k	
	R352	D0GA682JA021	6.8k	
	R354	D0GA123JA021	12k	
	R355	D0GA681JA021	680	
	R356	D0GA103JA021	10k	
	R371	ERJ8GEYJ1R0	1	
	R372	ERJ8GEYJ1R0	1	
	R373	D0GA681JA021	680	
	R451	ERJ2GEYJ391	390	S
	R477	D0GA1R0JA014	1	
	R478	D0GA1R0JA014	1	
	R501	ERJ2RKF5602	56k	
	R502	D0GA332JA015	3.3k	
	R505	D0GA102JA021	1k	
	R507	D0GA333JA015	33k	
	R601	D0GA332JA015	3.3k	
	R654	D0GA681JA021	680	
	R656	D0GA473JA021	47k	
	R661	ERJ3GEYJ390	39	
	R665	D0GA821JA021	820	
	R667	D0GA103JA021	10k	
	R668	D0GA561JA021	560	
	R701	D0GA332JA015	3.3k	
	R702	D0GA103JA021	10k	
	R721	ERJ2GEJ474X	470k	S
	R731	D0GA124JA015	120k	
	R732	ERJ2GEJ184	180k	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R735	ERJ2RKF4702	47k	
	R736	ERJ2GEJ223	22k	S
	R738	ERJ2RKF3302	33k	
	R891	D0GA221JA021	220	
	R892	D0GA221JA021	220	
			(CAPACITORS)	
	C101	F1K2H681A008	680p	S
	C102	F1K2H681A008	680p	S
	C103	ECUV1H103KBV	0.01	
	C104	ECUV1H103KBV	0.01	
	C105	F1K2H681A008	680p	S
	C106	F1K2H681A008	680p	S
	C107	ECUV1H103KBV	0.01	
	C108	ECUV1H103KBV	0.01	
	C109	ECUE1H821KBQ	820p	
	C110	ECUE1H821KBQ	820p	
	C111	ECUE1A333KBQ	0.033	S
	C113	ECUE1A823KBQ	0.082	S
	C132	ECUV1H103KBV	0.01	
	C142	ECUV1H103KBV	0.01	
	C152	ECUE1C103KBQ	0.01	
	C161	F1K1E1060001	10	
	C167	ECUV1H102KBV	0.001	
	C171	ECUV1C223KBV	0.022	
	C173	ECUE1A104KBQ	0.1	
	C174	ECUE1H222KBQ	0.0022	S
	C184	ECUV1C105KBV	1	
	C311	ECUE0J105KBQ	1	
	C312	ECUE0J105KBQ	1	
	C321	ECUV1C105KBV	1	
	C341	F2G0J102A148	1000	
	C342	ECUE1A104KBQ	0.1	
	C344	F2G0J102A148	1000	
	C351	ECUV1C105KBV	1	
	C451	PQCUV0J106KB	10	S
	C457	ECUE1C333KBQ	0.033	S
	C458	ECUE1C333KBQ	0.033	S
	C459	ECUE1H102KBQ	0.001	S
	C472	ECUE1H100DCQ	10p	
	C473	ECUE1H100DCQ	10p	
	C477	ECUE1H222KBQ	0.0022	S
	C478	ECUE1H222KBQ	0.0022	S
	C501	ECUE1A104KBQ	0.1	
	C502	ECUE0J105KBQ	1	
	C503	ECUE1H100DCQ	10p	
	C504	ECUE1A104KBQ	0.1	
	C505	ECUE1A104KBQ	0.1	
	C506	ECUV0J225KBV	2.2	
	C508	ECUE0J105KBQ	1	
	C509	ECUV0J225KBV	2.2	
	C512	ECUE0J105KBQ	1	
	C513	ECUE1A104KBQ	0.1	
	C516	ECUE1A104KBQ	0.1	
	C518	ECUE1A104KBQ	0.1	
	C519	ECUE1A104KBQ	0.1	
	C601	ECUE1A104KBQ	0.1	
	C610	ECUE0J105KBQ	1	
	C611	ECUE1A104KBQ	0.1	
	C661	ECUE1A104KBQ	0.1	
	C721	ECUE1A104KBQ	0.1	
	C731	ECUE1A104KBQ	0.1	
	C851	ECUE1H100DCQ	10p	
	C853	ECUE1H100DCQ	10p	
	C855	ECUE1H100DCQ	10p	
	C857	ECUE1H100DCQ	10p	
	C859	ECUE1H100DCQ	10p	
	C860	F1G1H1R8A765	1.8p	
	C861	F1G1H1R8A765	1.8p	
	C862	F1G1H2R0A765	2p	
			(OTHERS)	
	E1	L5DYAYY00004	LIQUID CRYSTAL DISPLAY (*2)	
	E2	PNHR1762Z	TRANSPARENT PLATE, LCD	PMMA-HB
	E3	PNHX1617Z	COVER, REFLECTOR SHEET	
	E4	PNHR1761Z	GUIDE, LCD	ABS-HB
	P101	D4DAY220A022	THERMISTOR (POSISTOR)	
⚠	F301	K5H302Y00003	FUSE	
	X501	H0J103500037	CRYSTAL OSCILLATOR (*1)	

16.5.1.3. Operational P.C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB2	PNWP2TG7871H	OPERATIONAL P.C.BOARD ASS'Y (RTL)	
			(LEDS)	
	LED901	B3AAB0000347	LED	
	LED902	B3AAB0000347	LED	
	LED904	B3AAB0000347	LED	
	LED911	B3ABB0000331	LED	
	LED912	B3ABB0000331	LED	
			(RESISTOR)	
	R906	EREJ3GEYJ330	33	S
			(CAPACITORS)	
	C901	ECUE0J105KBQ	1	
	C902	ECUV1C105KBV	1	
	C912	ECUE1H100DCQ	10p	
			(OTHER)	
	MIC1	L0CBAY000123	MICROPHONE	

16.5.1.4. USB Charge P.C. Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB3	PNWP4TG7871H	USB CHARGE P.C.BOARD ASS'Y (RTL)	
			(RESISTORS)	
	R1001	ERJ3GSYJ333	33k	S
	R1002	ERJ3GEYJ223	22k	S
	R1003	ERJ3GSYJ333	33k	S
	R1004	ERJ3GEYJ223	22k	S
			(OTHERS)	
	CN1001	K1FY104B0038	CONNECTOR	
⚠	F1001	K5H302Y00003	FUSE	

16.5.1.5. LED Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
			(LED)	
	WLED	B3AFB0000370	LED	

16.5.2. Handset

16.5.2.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	101	PNGP1272Z1	PANEL, LCD	PMMA-HB
	102	PNYE1106Z	TAPE, DOUBLE SIDED	
	103	PNKM1467Y2	CABINET BODY	ABS-HB
	104	L0AD01A00026	RECEIVER	
	105	PNYE1107Z	SPACER, CUSHION LCD	
	106	PNBC1483Z1	BUTTON, NAVIGATOR KEY	ABS-HB
	107	PNJK1181Z	KEYBOARD SWITCH	
	108	PNHR1757Z	GUIDE, SPEAKER	ABS-HB
	109	PQHG10729Z	RUBBER PARTS, RECEIVER	
	110	L0AA02A00120	SPEAKER	
	111	PNHS1502Z	SPACER, SPEAKER NET	
	112	PNKE1269Z1	COVER, EP CAP	
	113	PNJC1018Z	BATTERY TERMINAL	
	114	PNKF1271Z1	CABINET COVER	ABS-HB
	115	PNGT7140Y	NAME PLATE	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	116	PNQT2006Z	LABEL, ATTENTION	
	117	PNQT2629Z	LABEL, BATTERY	
	118	PNHS1466Z	SPACER, BATTERY	
	119	PNKK1076Z1	LID, BATTERY	ABS-HB
	120	PNYNTGA680BR	LID, BATTERY ASS'Y	ABS-HB
	121	PNHR1644Z	SPACER	PS-HB

16.5.2.2. Main P.C. Board Parts

Note:

(*1) Reconfirm the model No. written on the handset's name plate when replacing PCB100. Because the model No. of the optional handset may differ from the included handset.

(*2) When replacing IC3 or X1, make the adjustment using PNZZTG7871M. Refer to **Handset** (P.65) of Things to Do after Replacing IC or X'tal.

(*3) When replacing the handset LCD, See **How to Replace the Handset LCD** (P.56).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB100	PNWP1TGA680R	MAIN P.C.BOARD ASS'Y (RTL) (*1)	
			(ICs)	
	IC1	C2HBCY000124	IC	
	IC3	PNWITGA680R	IC(EEPROM)(*2)	
	IC4	C0DBZYY00357	IC	
			(TRANSISTORS)	
	Q2	B1ADCF000040	TRANSISTOR(SI)	
	Q3	B1ABGE000011	TRANSISTOR(SI)	
	Q4	B1ADCF000040	TRANSISTOR(SI)	
	Q6	DRC9113Z0L	TRANSISTOR(SI)	
	Q9	2SC6054JSL	TRANSISTOR(SI)	S
	Q10	B1ADNB000003	TRANSISTOR(SI)	
	Q11	2SC6054JSL	TRANSISTOR(SI)	S
	Q12	B1ADCF000040	TRANSISTOR(SI)	
			(DIODES)	
	D13	B0BC4R3A0006	DIODE(SI)	
	D14	B0BC4R3A0006	DIODE(SI)	
			(LEDS)	
	LED1	B3ACB0000190	LED	
	LED2	B3ACB0000190	LED	
	LED3	B3ACB0000190	LED	
	LED4	B3ACB0000190	LED	
	LED5	B3ACB0000190	LED	
	LED6	B3ACB0000190	LED	
	LED20	B3AFB0000561	LED	
			(COIL)	
	L801	G1C2N7Z00009	COIL	
			(RESISTOR ARRAYS)	
	RA2	D1H83314A013	RESISTOR ARRAY	S
	RA3	EXB24V331J	RESISTOR ARRAY	
	RA4	EXB24V332JX	RESISTOR ARRAY	
	RA5	EXB28V332JX	RESISTOR ARRAY	
			(IC FILTER)	
	L3	J0JDC0000045	IC FILTER	
			(RESISTORS)	
	R2	D0GA303JA021	30k	
	R3	D0GA152JA021	1.5k	
	R4	D0GA473JA021	47k	
	R6	D0GA103JA021	10k	
	R7	D0GA104JA021	100k	
	R8	ERJ8GEYJ4R3V	4.3	S
	R9	D0GA303JA021	30k	
	R10	ERJ3GEYJ1R0	1	S
	R11	D0GA681JA021	680	
	R12	D0GA183JA015	18k	
	R13	D0GA103JA021	10k	
	R19	ERJ2RKF2003X	200k	S
	R20	ERJ2RKF1003X	100k	S
	R21	D0GA104JA021	100k	
	R22	D0GA332JA015	3.3k	
	R23	ERJ2GEYJ391	390	S
	R24	ERJ2GEJ100	10	S
	R25	D0GA222JA021	2.2k	
	R26	D0GA332JA015	3.3k	
	R27	D0GA222JA021	2.2k	
	R28	D0GA222JA021	2.2k	
	R31	ERJ2RKF1003X	100k	S
	R32	D0GA104JA021	100k	
	R33	ERJ2RKF1003X	100k	S
	R34	ERJ2GEYJ391	390	S
	R45	D0GBR10JA113	0.1	
	R66	D0GA103JA021	10k	
	R67	D0GA103JA021	10k	
	R68	D0GA103JA021	10k	
	R69	D0GA103JA021	10k	
	R70	D0GA101JA021	100	
	R72	ERJ2GE0R00	0	S
	L8	ERJ2GEJ100	10	S
			(CAPACITORS)	
	C2	F1J0J2260002	22	
	C3	F1J0J2260002	22	
	C5	ECUE1A104KBQ	0.1	
	C6	ECUE1A104KBQ	0.1	
	C11	ECUE1A104KBQ	0.1	
	C12	ECJ1VB0G106M	10	S
	C13	ECUE1A104KBQ	0.1	
	C14	ECUV1C393KBV	0.039	
	C15	ECUE1H390JCQ	39p	
	C16	F1J0J2260002	22	
	C17	ECUE1H100DCQ	10p	
	C18	ECUE1H100DCQ	10p	
	C20	ECJ1VB0G106M	10	S
	C21	ECUE0J105KBQ	1	
	C22	ECUE1A104KBQ	0.1	
	C23	ECUE1A104KBQ	0.1	
	C24	ECUE0J105KBQ	1	
	C25	ECUV1A225KBV	2.2	S
	C26	ECJ1VB0G106M	10	S
	C27	ECUE1H102KBQ	0.001	S
	C29	ECUE0J105KBQ	1	
	C30	ECUE0J105KBQ	1	
	C31	ECJ1VB0G106M	10	S
	C32	ECUE0J105KBQ	1	
	C33	ECUE1A104KBQ	0.1	
	C34	ECUE1H390JCQ	39p	
	C36	ECUE1A104KBQ	0.1	
	C37	ECJ1VB0G106M	10	S
	C40	ECUE1A104KBQ	0.1	
	C41	ECUE1A104KBQ	0.1	
	C43	ECUE1A104KBQ	0.1	
	C44	ECUE0J105KBQ	1	
	C45	ECUE1A104KBQ	0.1	
	C46	ECUE1H100DCQ	10p	S
	C51	ECJ1VB0G106M	10	S
	C52	ECUE1H100DCQ	10p	
	C53	ECUE1H120JCQ	12p	
	C56	ECUE0J105KBQ	1	
	C57	ECUE0J105KBQ	1	
	C58	ECUE0J105KBQ	1	
	C68	ECUE0J105KBQ	1	
	C69	ECUE1A104KBQ	0.1	
	C70	ECUE1H680JCQ	68p	
	C71	ECUE1H680JCQ	68p	
	C79	ECUE1H101JCQ	100p	
	C80	ECUV1C393KBV	0.039	
	C90	ECUE1A104KBQ	0.1	
	C91	ECUV1C105KBV	1	
	C92	ECUE0J105KBQ	1	
	C96	ECUE1H100DCQ	10p	
	C97	ECUE1H100DCQ	10p	
	C801	F1G1H2R0A765	2p	
	C802	ECUE1H100DCQ	10p	
	C807	F1G1H2R0A765	2p	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	C808	F1G1H1R3A765	1.3p	
	C809	F1G1H1R5A765	1.5p	
	C810	ECUE1H150JCQ	15p	S
			(OTHERS)	
	MIC100	L0CBAY000053	MICROPHONE	
	E101	L5DYBYY00001	LIQUID CRYSTAL DISPLAY (*3)	S
	E102	PNHR1756Z	TRANSPARENT PLATE, LCD	PMMA-HB
	E103	PNHR1755Z	GUIDE, LCD	ABS-HB
	E104	PNHX1618Z	COVER, LCD SHEET	
	E105	PQHG10729Z	RUBBER PARTS, RECEIVER	
	E106	PNVE1011Z	BATTERY TERMINAL	ABS-HB
	E107	PNJT1141Z	CHARGE TERMINAL (L)	
	E108	PNJT1140Z	CHARGE TERMINAL (R)	
	CN4	K2HD103D0001	JACK	
⚠	F1	K5H252Y00002	FUSE	
	X1	H0J138500003	CRYSTAL OSCILLATOR (*2)	S

16.5.3. Charger Unit

16.5.3.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	200	PNLC1040ZB	CHARGER UNIT ASS'Y without NAME PLATE (RTL)	
	200-1	PNKM1477Z1	CABINET BODY	PS-HB
	200-2	PNJT1146Z	CHARGE TERMINAL	
	200-3	PNKF1279Z1	CABINET COVER	PS-HB
	200-4	PQHA10023Z	RUBBER PARTS, FOOT CUSHION	
⚠	200-5	PNLV233-AZ	AC ADAPTOR	
	201	PNGT7141Z	NAME PLATE	

16.5.4. Accessories and Packing Materials

Note:

(*1) You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

16.5.4.1. KX-TG7841S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A1	PNLV226Z	AC ADAPTOR	
	A2	PQJA10075Z	CORD, TELEPHONE	
	A3	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A4	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A5	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P1	PNPK3633002Z	GIFT BOX	
	P2	PNPD1710Z	CUSHION	

16.5.4.2. KX-TG7842S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A101	PNLV226Z	AC ADAPTOR	
	A102	PQJA10075Z	CORD, TELEPHONE	
	A103	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A104	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A105	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P101	PNPK3634002Z	GIFT BOX	
	P102	PNPD1711Z	CUSHION	

16.5.4.3. KX-TG7843S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A201	PNLV226Z	AC ADAPTOR	
	A202	PQJA10075Z	CORD, TELEPHONE	
	A203	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A204	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A205	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P201	PNPK3635002Z	GIFT BOX	
	P202	PNPD1712Z	CUSHION	

16.5.4.4. KX-TG7844S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A301	PNLV226Z	AC ADAPTOR	
	A302	PQJA10075Z	CORD, TELEPHONE	
	A303	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A304	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A305	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P301	PNPK3636002Z	GIFT BOX	
	P302	PNPD1713Z	CUSHION	

16.5.4.5. KX-TG7845S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A401	PNLV226Z	AC ADAPTOR	
	A402	PQJA10075Z	CORD, TELEPHONE	
	A403	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A404	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A405	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P401	PNPK3637002Z	GIFT BOX	
	P402	PNPD1714Z	CUSHION	

16.5.4.6. KX-TG365SK

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A501	PNLV226Z	AC ADAPTOR	
	A502	PQJA10075Z	CORD, TELEPHONE	
	A503	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A504	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A505	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB

16.5.4.7. KX-TG7871S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A601	PNLV234Z	AC ADAPTOR	
	A602	PQJA10075Z	CORD, TELEPHONE	
	A603	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A604	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A605	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P601	PNPK3633003Z	GIFT BOX	
	P602	PNPD1736Z	CUSHION	

16.5.4.8. KX-TG7872S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A701	PNLV234Z	AC ADAPTOR	
	A702	PQJA10075Z	CORD, TELEPHONE	
	A703	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A704	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A705	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P701	PNPK3683001Z	GIFT BOX	
	P702	PNPD1737Z	CUSHION	

16.5.4.9. KX-TG7873S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A801	PNLV234Z	AC ADAPTOR	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A802	PQJA10075Z	CORD, TELEPHONE	
	A803	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A804	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A805	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P801	PNPK3684001Z	GIFT BOX	
	P802	PNPD1738Z	CUSHION	

16.5.4.10. KX-TG7874S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A901	PNLV234Z	AC ADAPTOR	
	A902	PQJA10075Z	CORD, TELEPHONE	
	A903	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A904	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A905	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P901	PNPK3685001Z	GIFT BOX	
	P902	PNPD1739Z	CUSHION	

16.5.4.11. KX-TG7875S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A1001	PNLV234Z	AC ADAPTOR	
	A1002	PQJA10075Z	CORD, TELEPHONE	
	A1003	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A1004	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A1005	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P1001	PNPK3686001Z	GIFT BOX	
	P1002	PNPD1740Z	CUSHION	

16.5.4.12. KX-TG385SK

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A1101	PNLV234Z	AC ADAPTOR	
	A1102	PQJA10075Z	CORD, TELEPHONE	
	A1103	PNQX5764Z	INSTRUCTION BOOK (*1)	
	A1104	PNQW3431Z	LEAFLET, QUICK GUIDE	
	A1105	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB

16.5.4.13. KX-TGA680S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A1201	PNQX5772Z	INSTRUCTION BOOK (*1)	
	A1202	PNKE1268Z1	HANGER, BELT CLIP	ABS-HB
	P1201	PNPK3638001Z	GIFT BOX	
	P1202	PNPD1715Z	CUSHION	

16.5.5. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	XTB26+8GFJ	TAPPING SCREW	
	B	XTB2+8GFJ	TAPPING SCREW	

16.5.6. Fixtures and Tools

Note:

(*1) See **Equipment Required** (P.57), and **The Setting Method of JIG** (P.57)

(*2) When replacing the Handset LCD, See **How to Replace the Handset LCD** (P.56)

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
		PQZZ1CD300E	JIG CABLE (*1)	
		PNZZTG7871M	BATCH FILE CD-ROM (*1)	
		PQZZ430PIR	TIP OF SOLDERING IRON (*2)	
		PQZZ430PRB	RUBBER OF SOLDERING IRON (*2)	

T.I/N
KXTG7841S
KXTG7842S
KXTG7843S
KXTG7844S
KXTG7845S
KXTG365SK
KXTG7871S
KXTG7872S
KXTG7873S
KXTG7874S
KXTG7875S
KXTGA680S

ORDER NO. KM41401291SE
F13

Service Manual

Telephone Equipment

Supplement-1

Model No. KX-TG7841S
KX-TG7842S
KX-TG7843S
KX-TG7844S
KX-TG7845S
KX-TG365SK
KX-TG7871S
KX-TG7872S
KX-TG7873S
KX-TG7874S
KX-TG7875S
KX-TG385SK
KX-TGA680S
KX-TGA20B

Link-to-Cell Cellular Convergence Solution

B: Black Version
S: Silver Version
(for U.S.A.)

Please file and use this supplement manual together with the service manual for Model No.KX-TG7841S/ KX-TG7842S/KX-TG7843S/KX-TG7844S/KX-TG7845S/KX-TG365SK/KX-TG7871S/KX-TG7872S/KX-TG7873S/KX-TG7874S/KX-TG7875S/KX-TG385SK/KX-TGA680S/KX-TGA20B, Order No. KM41302655CE.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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TABLE OF CONTENTS

PAGE

1 REPLACEMENT PARTS LIST ----------3

1.1. REFERENCE CHART ----------3

1.2. ORIGINAL AND NEW PARTS COMPARISON LISTS ----------3

1 REPLACEMENT PARTS LIST

1.1. REFERENCE CHART

Reason for Change	
*The following items (1-8) indicate the reason for change. See the "**Notes**" column for each part in **ORIGINAL AND NEW PARTS COMPARISON LISTS.**	
1. Improve performance	**Remarks:**
2. Change of material or dimension	***m :** Discontinued (To be replaced with a new part)
3. To meet approved specification	***c :** To share the parts with other models.
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
8. Other	

Interchangeability Code		
The following items (V-Z) indicate the Interchangeability. See the "Notes**" column for each part in **ORIGINAL AND NEW PARTS COMPARISON LISTS.**		
V	Original → Early (before change) New → Late (after change)	Original or new parts may be used in early or late production sets. Use original parts until exhausted, then stock new parts.
W	Original → Early (before change) New → Late (after change)	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
X	Original → Early (before change) New → Late (after change)	New parts only may be used in early or late production sets. Stock new parts.
Y	Original → Early (before change) New → Late (after change)	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
Z	Other	

Note:
Alphabets in the "Remarks" column in the following lists correspond to the alphabets in the "Remarks" in REFERENCE CHART.

1.2. ORIGINAL AND NEW PARTS COMPARISON LISTS

Ref. No.	Part No.		Part Name & Description	Pcs/ Set	Remarks	**Notes**		Time of Change (Suffix)
	Original (Old)	**New**						
Cabinet and Electrical Parts (Base Unit)								
25	PNGT7152Z	**PNGT7732Z**	NAME PLATE (for KX-TG7841S/ TG7842S/TG7843S/TG7844S/ TG7845S/TG365SK)	1	*m	8	V	---
25	PNGT7261Z	**PNGT7677Z**	NAME PLATE (for KX-TG7871S/ TG7872S/TG7873S/TG7874S/ TG7875S/TG385SK) (Made in China)	1	*m	8	V	---
25	----------	**PNGT7854Z**	NAME PLATE(for KX-TG385SK) (Made in Malaysia)	1	*c	5	V	---
Cabinet and Electrical Parts (Handset)								
115	----------	**PNGT7855Y**	NAME PLATE(for KX-TG385SK) (Made in Malaysia)	1	*c	5	V	---
Cabinet and Electrical Parts (Charger Unit)								
201	----------	**PNGT7856Z**	NAME PLATE(for KX-TG385SK) (Made in Malaysia)	1	*c	5	V	---
Accessories and Packing Materials								
A1103	----------	**PNQX5764Y**	INSTRUCTION BOOK (Made in Malaysia)	1	*c	5	V	---

OY
KXTG7841S
KXTG7842S
KXTG7843S
KXTG7844S
KXTG7845S
KXTG365SK
KXTG7871S
KXTG7872S
KXTG7873S
KXTG7874S
KXTG7875S
KXTG385SK
KXTGA680S
KX-TGA20B